ORIGINAL TO GENERAL FILES

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

OFFICE OF DESIGN POLICY & SUPPORT
INTERDEPARTMENTAL CORRESPONDENCE

FILE P.I. # 122900-
APD00-0056-02(029)
Union County
GDOT District 1 - Gainesville
SR 515/US 76 Widening & New Location -
From Blairsville to Young Harris

OFFICE Design Policy & Support

DATE 4/18/2016

FROM for Brent Story, State Design Policy Engineer

TO SEE DISTRIBUTION

SUBJECT **APPROVED CONCEPT REPORT**

Attached is the approved Concept Report for the above subject project.

Attachment

DISTRIBUTION:

Hiral Patel, Director of Engineering
Joe Carpenter, Director of P3/Program Delivery
Genetha Rice-Singleton, Assistant Director of P3/Program Delivery
Albert Shelby, State Program Delivery Engineer
Darryl VanMeter, State Innovative Delivery Engineer
Bobby Hilliard, Program Control Administrator
Cindy VanDyke, State Transportation Planning Administrator
Eric Duff, State Environmental Administrator
Bill DuVall, State Bridge Engineer
Andrew Heath, State Traffic Engineer
Angela Robinson, Financial Management Administrator
Lisa Myers, State Project Review Engineer
Charles "Chuck" Hasty, State Materials Engineer
Lee Upkins, State Utilities Engineer
Paul Tanner, State Transportation Data Administrator
Attn: Systems & Classification Branch
Richard Cobb, Statewide Location Bureau Chief
Brent Cook, District Engineer
Brandon Kirby, District Preconstruction Engineer
Robby Oliver, District Utilities Engineer
Steve Adewale, Project Manager
BOARD MEMBER - 9th Congressional District

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
PROJECT CONCEPT REPORT

Project Type: Reconstruction/ Rehabilitation
P.I. Number: 122900
GDOT District: 1
County: Union/Towns
Federal Route Number: 76
State Route Number: 515/2
Project Number: APD00-0056-02(029)

Reconstruction and Rehabilitation of SR 515/US 76 from CS 2898/Young Harris Street in Blairsville to CR 153/Timberline Drive in Young Harris.

Submitted for approval:

HNTB - [signature] — 9/29/15
Consultant Designer & Firm or GDOT Concept/Design Phase Office Head & — Date

Local Government Sponsor — Date

Albert Shelby — 10.1.15
State Program Delivery Engineer — Date

for Steve Adamczyk — 9/30/15
GDOT Project Manager — Date

Recommendation for approval:

HIRAL PATEL*/EKP — 10/26/2015
State Environmental Administrator — Date

for KEN WERHO*/EKP — 10/6/2015
State Traffic Engineer — Date

LISA MYERS*/EKP — 10/6/2015
Project Review Engineer — Date

for YOLONDA PRIDE-FOSTER*/EKP — 10/19/2015
State Utilities Engineer — Date

District Engineer — Date

BILL DUVALL*/EKP — 3/15/2016
State Bridge Engineer — Date

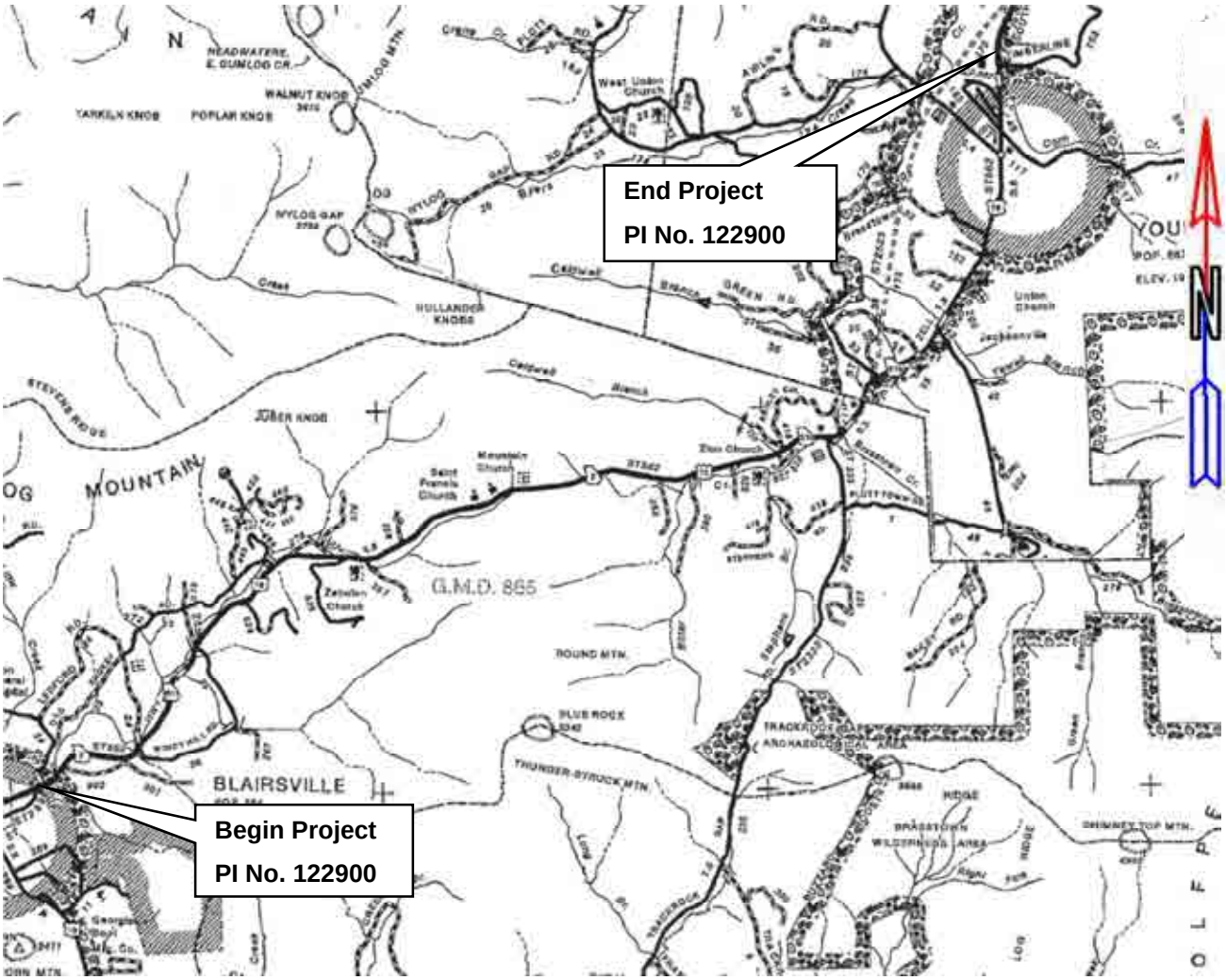
☐ MPO Area: This project is consistent with the MPO adopted Regional Transportation Plan (RTP)/Long Range Transportation Plan (LRTP).

☒ Rural Area: This project is consistent with the goals outlined in the Statewide Transportation Plan (SWTP) and/or is included in the State Transportation Improvement Program (STIP).

CINDY VANDYKE*/EKP — 10/9/2015
State Transportation Planning Administrator — Date

*-RECOMMENDATION ON FILE

PROJECT LOCATION MAP



PROJECT NUMBER: APD00-0056-02(029)

DESCRIPTION: SR 515/2/US 76 FM E BLAIRSVILLE TO YOUNG HARRIS BP@CL/CORR A

PLANNING AND BACKGROUND

Project Justification Statement:

SR 515/US 76 is a 2-lane north-south roadway with intermittent passing lanes between Blairsville in Union County and Young Harris in Towns County. SR 515/US 76 is functionally classified as a Rural Principal Arterial and is listed as a designated bike route in the State Bicycle plan. The posted speed limits on this roadway range between 35 and 55 MPH. The proposed project originated via a recommendation from the District One office and was added to the Department's Construction Work Program in 1998 by the SHIP committee. The project is currently identified in GDOT's FY 2015-2018 STIP, with right-of-way funds available in fiscal year 2017. SR 515/US 76 is part of Corridor A of the Appalachian Development Highway System (ADHS) with the main goal of providing access and stimulating economic growth to that region. In addition, SR 515 is also part of the Governor's Road Improvement Program (GRIP).

Based upon traffic data information, approved by the Office of Planning, the 2010 Average Annual Daily Traffic (AADT), along SR 515/US 76 in the area of this project ranges up to 17,000 AADT, which represents a LOS "D". Projected traffic volumes show a corresponding traffic volume range up to 34,500 AADT by the design year 2039. The LOS on SR 515/US 76 in 2039 (design year) is projected to be "F". These LOS ratings are seen as unacceptable with regards to statewide LOS performance measures as referenced in the 2005-2035 Statewide Transportation Plan (SWTP). In addition, analysis of the last three years of available crash data in this area show that the crash rates for this section of SR 515/US 76 were above the statewide average for similar classified facilities for two out of three years.

Future traffic conditions on SR 515/US 76 through this area of Union and Towns Counties demonstrate a need to provide capacity improvements to the corridor within the proposed limits. To the north, the project would tie into an existing four-lane typical section at CR 1553/Timberline Drive within the northern city limits of Young Harris in Towns County. To the south, the project ties into an existing four-lane typical section at Young Harris Street in Blairsville, Union County.

Based on this information, the proposed limits accommodate the primary purpose of this project, which is to address current and future capacity deficiencies, as well as potentially reduce crash frequency and severity along the corridor within Union and Towns Counties.

- The major performance goal of the project is to provide an acceptable LOS for the future traffic demands along the corridor. The secondary benefits include the reduction of traffic accident frequency and severity, as well as provide better mobility through the addition of bike lanes and a bypass around Young Harris.

Existing conditions: The existing highway inside the city limits of Blairsville and Young Harris consists of a 2-lane urban section with center two-way left turn lane. The urban section between Blairsville and Young Harris consists of a 3-lane section (2-lane highway with passing lane). There is one major signaled intersection at Industrial Blvd in Blairsville. There is one existing 3-lane bridge spanning Brasstown Creek just south of the Towns County line. Utilities along the corridor are minimal, but include underground water and sewer within the city limits of Blairsville and Young Harris, and overhead electric, cable, and telephone in most other parts of the corridor.

Other projects in the area:

- Union County, PI No. 0010688 – SR 2/SR 515 From CS 352/School St to CR 33/Brasstown Creek Road
- Towns County, PI No. M005063 – Resurfacing of SR 515 from Union County Line to North Carolina State Line
- STP00-0002-07(020), Union County, PI No. 122900 – Widening and reconstruction of SR 11/US 19 & 129/Murphy Highway from SR 515/US 76/US 2 to north of SR 325/Nottely Dam Road.
- CSSTP-0001-00(918), Union County, PI No. 0001918 – Intersection Improvement CR 1/Pat Colwell Road & CR 2/Pat Haralson Drive with SR 11/US 19 & 129

- BR000-0000-00(304), Towns County, PI No. 0000304 – Bridge Replacement on SR 66 over Brasstown Creek 0.5 miles northwest of Young Harris
- SFPR0-M003-00(883), Union County, PI No. M003883 – SR 11 at Glenn Gooch By-pass Turn Lane
- BRSLB-2915-00(005), Union County, PI No. 132180 – CR 341 @ Nottley River SW of Blairsville

MPO: N/A - Project not in MPO **TIP #:** N/A

TIA Regional Commission: N/A *If TIA project, list RC Project ID* N/A

Congressional District(s): 9

Federal Oversight: ☐ PoDI ☒ Exempt ☐ State Funded ☐ Other

Projected Traffic: ADT 24 HR T: 14 %
Current Year (2015): 17,000 Open Year (2019): 19,100 Design Year (2039): 34,500
Traffic Projections Performed by: HNTB Corporation

Functional Classification (Mainline): Rural Principal Arterial

Complete Streets - Bicycle, Pedestrian, and/or Transit Standard Warrants:

Warrants met: ☐ None ☒ Bicycle ☐ Pedestrian ☐ Transit

The Georgia Mountain Regional Commission has listed an on-road bicycle project for Union County along this corridor; SR 2 (US 76)/ SR 515/CR 341(Blue Ridge Hwy). This covers 15.81 miles from the Towns/Union County Line in east Union County to the Fannin/Union County Line. Within the rural typical section limits along SR 515/US 76, the proposed bike project will provide a rural shoulder that would accommodate bicyclists. 4' wide bicycle lanes will be provided on both directions of travel along the urban sections of the widening.

Is this a 3R (Resurfacing, Restoration, & Rehabilitation) Project? ☒ No ☐ Yes

Pavement Evaluation and Recommendations

Preliminary Pavement Evaluation Summary Report Required? ☐ No ☒ Yes
Preliminary Pavement Type Selection Report Required? ☒ No ☐ Yes
See attached memo.

Feasible Pavement Alternatives: ☒ HMA ☐ PCC ☐ HMA & PCC

DESIGN AND STRUCTURAL

Description of the proposed project: Project APD00-0056-02(029) is the widening and reconstruction of SR 515 & 2/US 76 in Union and Towns Counties east of Blairsville from Young Harris St /CS 2898 to just east of Timberline Dr/CR 153 in Young Harris. The total project length is approximately 8.50 miles (7.25 miles of widening/1.25 miles of bypass) and goes from mile post 9.74 in Union County to mile post 2.47 in Towns County. This includes a 2-lane rural bypass around the west side of Young Harris, beginning at Brasstown Creek Rd and ending at Timberline Dr.

Major Structures:

Structure	Existing	Proposed
Structure ID: 291-5004-0/ Weaver Rd/CR23 at Butternut Creek	38' long, triple 10x10 culvert, 2-10' travel lanes with 5' shoulders. Sufficiency rating is 99.00. Load capacity is HS-20+.	No change proposed from existing.

Structure ID: 291-5005-0/ Ledford Rd/CR24 at Butternut Creek	46’ long, triple 10x8 culvert, 2-10’ travel lanes with 5’ shoulders. Sufficiency rating is 92.30. Load capacity is H-15.	Proposed raising of culvert parapet and wingwalls to accommodate raising of Ledford Rd profile.
Structure ID: 291-0006-0/ US 76/SR 515/SR 2 at Butternut Creek	72’ long, triple 10x8 culvert, 3-12’ travel lanes with 8’ shoulders. Sufficiency rating is 71.60. Load capacity is H-15.	Replacement of existing culvert with 160’ long, triple barrel box culvert (Barrel 1 – 10’x10’/Barrels 2&3 – 6’x6’)
Structure ID: 291-0007-0/ US 76/SR 515/SR 2 at Brasstown Creek	114’x59.50’ bridge, 2-12’ travel lanes, 1-14’ center turn lane with 8’ shoulders. Sufficiency rating is 76.70. Load capacity is H-20.	Existing bridge to be replaced at same location to accommodate 2 lanes of future northbound traffic. Proposed parallel bridge to be constructed to accommodate 2 lanes of future southbound traffic.
Proposed culvert crossing on Young Harris Bypass over Corn Creek	N/A	Proposed 3 Barrel 10’ x 10’ culvert
Structure ID: 281-0001-0/ US 76/SR 515/SR 2 at Brasstown Creek Tributary	3 Barrel 10’x6’, 2-12’ travel lanes, 1-14’ center turn lane with 8’ shoulders. Sufficiency rating is 49.20. Load capacity is H-15.	Replacement of existing culvert with double barrel box culvert (Barrel 1 – 7’x10’/Barrel 2 – 7’x8’)
Retaining wall	N/A	Proposed 550’ soil nail wall to reduce impacts to forested area from 135+60 to 141+10 RT.
Retaining wall	N/A	Proposed 900’ soil nail wall to reduce impacts to forested area from 153+00 to 162+00 RT.
Retaining wall	N/A	Proposed 650’ retaining wall to eliminate impacts to historic store from 172+00 to 178+50 RT.
Retaining wall	N/A	Proposed 970’ MSE wall to reduce impacts to perennial stream and lumber business from STA 172+50 to 182+20 LT.
Retaining wall	N/A	Proposed 980’ long soil nail retaining wall to eliminate cut slope impacts to homes and forested area from STA 184+00 to 193+80 RT.
Retaining wall	N/A	Proposed 750’ long soil nail retaining wall to eliminate cut slope impacts to church from STA 200+50 to 208+00 RT.
Retaining wall	N/A	Proposed 175’ long retaining wall to eliminate cut slope impacts to historic cemetery at STA 296+25 to 298+00 LT.

Retaining wall	N/A	Proposed 1715' soil nail wall to eliminate impacts to US Forest Service Property from 311+00 to 328+15 LT.

Mainline Design Features: ***Young Harris Highway/US 76/SR 515 & 2 Rural Principal Arterial***

Typical Section 1: Four 12-foot wide travel lanes, 14-foot two-way left turn lane with 10-foot wide urban shoulders with sidewalks from Young Harris St/CS 2898 to just east of Industrial Blvd/Glen Gooch Bypass, and from ¼ mile west of Plottown Rd/CR 43 to proposed roundabout at Brasstown Creek Rd in Young Harris.

Feature	Existing	Standard*	Proposed
Typical Section			
- **Number of Lanes**	**3**	**4**	**4**
- **Lane Width(s)**	**12'**	**12'**	**12'**
- **Median Width & Type**	**14' flush**	**14' flush**	**14' flush**
- **Outside Shoulder or Border Area Width**	**10' grass urban shoulder**	**10' grass urban shoulder**	**10' grass urban shoulder**
- **Outside Shoulder Slope**	**2%**	**2%**	**2%**
- **Inside Shoulder Width**	**N/A**	**N/A**	**N/A**
- **Sidewalks**	**5'**	**5'**	**5'**
- **Auxiliary Lanes**	**N/A**	**N/A**	**N/A**
- **Bike Lanes**	**N/A**	**N/A**	**4'**
Posted Speed	**45**		**45**
Design Speed	**45**	**35 - 45**	**45**
Min Horizontal Curve Radius	**1100'**	**711'**	**1100'**
Maximum Superelevation Rate	**4%**	**4%**	**4%**
Maximum Grade	**4%**	**6%**	**3.6%**
Access Control	**Partial**	**Partial**	**Partial**
Design Vehicle	**N/A**	**WB-40 or WB-62**	**WB-67**
Pavement Type	**HMA**	**HMA**	**HMA**
Right-of-Way Width	**Varies 80'-130'**	**Varies**	**Varies 130'-155'**
Maximum Grade – Crossroad	**12.5%**	**17%**	**14.5%**

*According to current GDOT design policy if applicable

Typical Section 2: Two 12-foot wide outside travel lanes, two 11-foot wide inside travel lanes, 32-foot depressed median with 10-foot wide rural shoulders from Industrial Blvd/CR 302 in Blairsville to ¼ mile west of Plottown Rd in Young Harris.

Feature	Existing	Standard*	Proposed
Typical Section			
- **Number of Lanes**	**3**	**4**	**4**
- **Lane Width(s)**	**12'**	**12'**	**12' outside/ 11' inside**
- **Median Width & Type**	**N/A**	**44'**	**32'**
- **Outside Shoulder or Border Area Width**	**10' (2' paved)**	**10' (6.5' paved)**	**10' (6.5' paved)**
- **Outside Shoulder Slope**	**6%**	**6%**	**6%**
- **Inside Shoulder Width**	**N/A**	**6' (2' paved)**	**6' (2' paved)**
- **Sidewalks**	**N/A**	**N/A**	**N/A**
- **Auxiliary Lanes**	**N/A**	**N/A**	**N/A**
- **Bike Lanes**	**N/A**	**N/A**	**4' (paved shoulder)**
Posted Speed	**55**		**55**
Design Speed	**55**	**45 - 65**	**55**
Min Horizontal Curve Radius	**1100'**	**1060'**	**1100'**
Maximum Superelevation Rate	**8%**	**6%**	**6%**
Maximum Grade	**6%**	**6%**	**6%**
Access Control	**Partial**	**Partial**	**Partial**
Design Vehicle	**N/A**	**WB-40 or WB-62**	**WB-67**
Pavement Type	**HMA**	**HMA**	**HMA**
Right-of-Way Width	**Varies 80'-130'**	**Varies**	**Varies 180'-250'**
Maximum Grade – Crossroad	**17%**	**17%**	**17%**

Typical Section 3: Two 12-foot wide travel lanes with 10-foot wide rural shoulders from proposed roundabout at Brasstown Creek Rd to the other proposed roundabout at the tie-in with the existing four-lane roadway section at Timberline Dr in Young Harris.

Feature	Existing	Standard*	Proposed
Typical Section			
- **Number of Lanes**	**N/A**	**2**	**2**
- **Lane Width(s)**	**N/A**	**12'**	**12'**

- **Median Width & Type**	**N/A**	**N/A**	**N/A**
- **Outside Shoulder or Border Area Width**	**N/A**	**10' (6.5' paved, 3.5' grass)**	**10' (6.5' paved, 3.5' grass)**
- **Outside Shoulder Slope**	**N/A**	**6%**	**6%**
- **Inside Shoulder Width**	**N/A**	**N/A**	**N/A**
- **Sidewalks**	**N/A**	**N/A**	**N/A**
- **Auxiliary Lanes**	**N/A**	**N/A**	**N/A**
- **Bike Lanes**	**N/A**	**N/A**	**4' (paved shoulder)**
Posted Speed	**N/A**		**35**
Design Speed	**N/A**	**35 - 55**	**35**
Min Horizontal Curve Radius	**N/A**	**340'**	**1000'**
Maximum Superelevation Rate	**N/A**	**6%**	**6%**
Maximum Grade	**N/A**	**6%**	**6%**
Access Control	**N/A**	**Permitted**	**Permitted**
Design Vehicle	**N/A**	**WB-40 or WB-62**	**WB-67**
Pavement Type	**N/A**	**HMA**	**HMA**
Right-of-Way Width	**N/A**	**Varies**	**Varies 80'-100'**
Maximum Grade – Crossroad	**N/A**	**17%**	**4.5%**

Major Interchanges/Intersections: Industrial Blvd/CR 302 & SR 515 & 2/US 76, and Murphy St/SR 66 and SR 515 & 2/US 76 are major intersections.

Lighting required: ☐ No ☒ Yes
Lighting will be required for both roundabouts and their approaches. A lighting agreement is required with the City of Young Harris.

Off-site Detours Anticipated: ☐ No ☒ Yes ☐ Undetermined
There is a need to provide temporary detour for Brasstown Creek Rd to travel down partially constructed bypass.

Transportation Management Plan [TMP] Required: ☐ No ☒ Yes
If Yes: Project classified as: ☒ Non-Significant ☐ Significant
TMP Components Anticipated: ☒ TTC ☐ TO ☐ PI

Design Exceptions to FHWA/AASHTO controlling criteria anticipated:

FHWA/AASHTO Controlling Criteria	No	Undeter-mined	Yes	Appvl Date (if applicable)
1. Design Speed	☒	☐	☐	
2. Lane Width	☐	☐	☒	

3. Shoulder Width	☒	☐	☐	
4. Bridge Width	☒	☐	☐	
5. Horizontal Alignment	☒	☐	☐	
6. Superelevation	☒	☐	☐	
7. Vertical Alignment	☒	☐	☐	
8. Grade	☒	☐	☐	
9. Stopping Sight Distance	☒	☐	☐	
10. Cross Slope	☒	☐	☐	
11. Vertical Clearance	☒	☐	☐	
12. Lateral Offset to Obstruction	☒	☐	☐	
13. Bridge Structural Capacity	☒	☐	☐	

Note: A design exception is required for 11' inside lane width on the 4-lane divided rural section. Going to an 11' inside lane width on that section was an implementation of a VE Study recommendation.

Design Variances to GDOT Standard Criteria anticipated:

GDOT Standard Criteria	Reviewing Office	No	Undeter--mined	Yes	Appvl Date (if applicable)
1. Access Control/Median Openings	DP&S	☒	☐	☐	
2. Intersection Sight Distance	DP&S	☒	☐	☐	
3. Intersection Skew Angle	DP&S	☒	☐	☐	
4. Lateral Offset to Obstruction	DP&S	☒	☐	☐	
5. Rumble Strips	DP&S	☒	☐	☐	
6. Safety Edge	DP&S	☒	☐	☐	
7. Median Usage	DP&S	☐	☐	☒	
8. Roundabout Illumination Levels	DP&S	☒	☐	☐	
9. Complete Streets	DP&S	☒	☐	☐	
10. ADA & PROWAG	DP&S	☒	☐	☐	
11. GDOT Construction Standards	DP&S	☒	☐	☐	
12. GDOT Drainage Manual	DP&S	☒	☐	☐	
13. GDOT Bridge & Structural Manual	Bridges	☒	☐	☐	

Note: A design variance is required for proposed use of a 14'-wide two-way left turn lane median from the beginning of the project to the median transition to a 4-lane divided rural highway.

VE Study anticipated: ☐ No ☒ Yes ☒ Completed – Date: 9/2/2015
See attached VE Implementation Letter.

UTILITY AND PROPERTY

Temporary State Route needed: ☒ No ☐ Yes ☐ Undetermined

Railroad Involvement: None

Utility Involvements: The utilities identified and impacted by this project include the following:

- Overhead electrical facilities owned by Blue Ridge Mountain EMC
- Water main facilities owned by the City of Blairsville
- Water main facilities owned by the Coosa Water Authority
- Water main facilities owned by the Notla Water Authority
- Water main facilities owned by the City of Young Harris
- Sanitary sewer facilities owned by the City of Young Harris
- Water main owned by Towns County

- Fiber-optic facilities owned by Bakam Fiber Net
- TVA overhead electric transmission lines
- Overhead telephone and cable television facilities owned by Windstream Communications

SUE Required: ☐ No ☒ Yes ☐ Undetermined

Public Interest Determination Policy and Procedure recommended? ☒ No ☐ Yes

Right-of-Way (ROW): Existing width: Varies 80-130ft. Proposed width: Varies 80-250ft.
Required Right-of-Way anticipated: ☐ None ☒ Yes ☐ Undetermined
Easements anticipated: ☐ None ☒ Temporary ☒ Permanent ☐ Utility ☐ Other

Anticipated total number of impacted parcels: 168
Displacements anticipated: Businesses: 28
Residences: 18
Other:
Total Displacements: 46

Location and Design approval: ☐ Not Required ☒ Required

Impacts to USACE property anticipated? ☒ No ☐ Yes ☐ Undetermined

ROUNDABOUTS

Roundabout Lighting Agreement/Commitment Letter received: ☐ No ☒ Yes
A commitment letter from the mayor of Young Harris has been received, but an agreement has not yet been executed. The Department is in the process of coordinating an official agreement with the City of Young Harris.

Roundabout Planning Level Assessment: Capacity analysis was performed on the intersections where roundabouts are planned. That capacity analysis showed that the existing intersections at Brasstown Creek Road and Timberline Drive will operate at LOS F and D, respectively, in the no-build alternative in 2034; and LOS C and B, respectively, in the preferred alternative in 2034.

Roundabout Feasibility Study: N/A

Roundabout Peer Review Required: ☐ No ☒ Yes ☒ Completed – Date: 9/3/2015

CONTEXT SENSITIVE SOLUTIONS

Issues of Concern: There are several issues of concern along the project corridor. These include the presence of warm water streams, cold water trout streams, wetlands, US National Forest property, historic properties, historic cemeteries, state-listed plant populations, and archaeologically-sensitive areas.

Context Sensitive Solutions Proposed: The issues of concern are going to be addressed by this project in several ways including the addition of landscaping and signing for Young Harris College inside both roundabouts, water quality measures for insects on which the endangered bats forage, as well as rare plant relocation of pink lady slipper orchids.

ENVIRONMENTAL & PERMITS

Anticipated Environmental Document:

GEPA: ☐ **NEPA:** ☐ CE ☒ EA/FONSI ☐ EIS

MS4 Permit Compliance – Is the project located in a MS4 area? ☒ No ☐ Yes

Environmental Permits/Variances/Commitments/Coordination anticipated:

Permit/ Variance/ Commitment/ Coordination Anticipated	No	Yes	Remarks
1. U.S. Coast Guard Permit	☒	☐	
2. Forest Service/Corps Land	☐	☒	SF 299 Permit required for disturbance to Forest Service land
3. CWA Section 404 Permit	☐	☒	Section 404 Individual Permit (IP) required for impacted streams and wetlands
4. Tennessee Valley Authority Permit	☐	☒	TVA Permits will be required for stream impacts within the Tennessee River watershed.
5. Buffer Variance	☐	☒	A Stream Buffer Variance through GA EPD is required
6. Coastal Zone Management Coordination	☒	☐	
7. NPDES	☐	☒	NPDES permit required prior to construction
8. FEMA	☒	☐	
9. Cemetery Permit	☒	☐	Cemetery impacts have been avoided
10. Other Permits	☒	☐	
11. Other Commitments	☐	☒	Practical Alternatives Report (PAR) commitments to several agencies
12. Other Coordination	☐	☒	USFWS coordination on endangered bat roosting areas and associated stream water quality for insect reproduction as a food source for those bats

Is a PAR required? ☐ No ☒ Yes ☒ Completed – Date: 7/8/2015
See attached approved PAR.

Environmental Comments and Information:

NEPA/GEPA: An Environmental Assessment (EA) is anticipated for this project. There are historic and archaeological resources in the project area. Impacts to these resources are known as the special studies are complete and the findings have been approved by SPHO. The Chattahoochee National Forest is an additional 4(f) resource that the proposed project crosses in the area of Mariposa Lane. Right-of-way is required where the proposed project crosses the US Forest Service property. This means that a 4(f) Evaluation will be required; however, this can be achieved via a de minimis letter to the head of the Chattahoochee/Oconee National Forest. This letter has been drafted, mailed and is awaiting signature in the hands of USFS. This signature will occur after the comment period following the PHOH planned for the spring of 2016.

Ecology: Based on field surveys, 60 streams, 8 wetlands, and 2 open waters are located on or adjacent to the proposed alignment. The proposed project is expected to impact no more than 3,423 linear feet of perennial and intermittent stream channel, 0.563 acres of wetlands and ephemeral stream channel, and 0 acres of open waters. Impacts to these waters of the United States would be authorized under a Section 404 Individual Permit (IP). State of Georgia Water Quality Certification will also be required for the proposed project. Both warm water streams and cold water trout streams are present along this proposed project. Warm water streams have a protected 25-foot

vegetated buffer. Trout streams have a protected 50-foot vegetated buffer. All perennial and intermittent streams within the Butternut Creek watershed are warm water streams. All perennial and intermittent streams within the Brasstown Creek watershed are cold water trout streams.

History: Multiple historic resources are located along the corridor. Many resources are close to existing SR 515 edge of pavement or within viewshed. AOE has been approved and concurrence gotten from SHPO on the AOE and MOU.

Archeology: Archaeological testing has been conducted along the project corridor. Phase 2 survey has been completed on eight sites that were recommended as potentially eligible during the initial archaeological testing. The eligible resources discovered include a prehistoric Indian petroglyph and quarry, Mississippian/Historic Cherokee Farmstead, historic family cemetery, and other sites containing prehistoric remains. Impacts to these resources will be minimized through the use of alignment shifts and retaining walls.

Air Quality:

Is the project located in a PM 2.5 Non-attainment area? ☒ No ☐ Yes

Is the project located in an Ozone Non-attainment area? ☒ No ☐ Yes

Carbon Monoxide hotspot analysis: ☐ Required ☒ Not Required ☐ TBD

The 1990 Clean Air Act amendments and guidelines, issued by the Environmental Protection Agency (EPA), set forth guidelines to be followed by agencies responsible for attainment of the National Ambient Air Quality Standards (NAAQS). The Clean Air Act section 176(c) requires that federal transportation projects are consistent with state air quality goals, found in the State Implementation Plan (SIP). The process to ensure this consistency is called Transportation Conformity. Conformity to the SIP means that transportation activities will not cause new violations of the NAAQS, worsen existing violations of the standards, or delay timely attainment of the relevant standard. In complying with these guidelines the Georgia Department of Transportation (GDOT) has completed an analysis on the effects of the proposed project on air quality.

Noise Effects: A Type I project Noise Assessment has been conducted. Federal guidelines provided by Part 772 of Title 23 of the Code of Federal Regulations and GDOT guidelines set forth in the GDOT's Highway Noise Abatement Policy for Federal-Aid Projects have been followed. Traffic Noise Model 2.5 (TNM2.5) has been utilized to determine the existing and future acoustic environment. Potential noise mitigation measures' feasibility and reasonableness have been evaluated.

Public Involvement: There have been 2 stakeholder meetings, both held in Young Harris—one at Young Harris City Hall on December 7, 2011 and one at Young Harris College on March 16, 2011 (see attachments for meeting minutes and results). There have been 2 PIOH meetings—one at the Blairsville Civic Center on May 3, 2011 and one at Young Harris College on May 5, 2011 (see attached PIOH comments for meeting results). A PHOH will be held in spring of 2016, prior to FONSI being issued.

Major stakeholders: Major stakeholders for this project include the traveling public, Union County, Towns County, the City of Blairsville, the City of Young Harris, Young Harris College, owners of residential, agricultural and business properties along project, the US Forest Service, the Tennessee Valley Authority, and the US Fish and Wildlife Service.

CONSTRUCTION

Issues potentially affecting constructability/construction schedule: The issue most likely to affect the construction schedule is the potential presence of endangered Indiana or Long-Eared bats. This will limit land clearing activities to certain times of year. However, the most recent bat survey in the summer of 2015 did not find any endangered bats inside the project corridor.

Early Completion Incentives recommended for consideration: ☒ No ☐ Yes

COORDINATION, ACTIVITIES, RESPONSIBILITIES, AND COSTS

Initial Concept Meeting: N/A

Concept Meeting: The Concept Team Meeting was held at the District 1 GDOT Office in Gainesville on November 30, 2011. The meeting focused primarily on those issues that could potentially affect the project schedule, specifically history, ecology, and archaeology. See attached concept meeting minutes.

Other coordination to date: Meetings with Young Harris officials, Young Harris College president, US Fish and Wildlife Service (USFWS), and US Forest Service (USFS).

Project Activity	Party Responsible for Performing Task(s)
Concept Development	HNTB
Design	HNTB
Right-of-Way Acquisition	GDOT
Utility Coordination (Preconstruction)	GDOT, HNTB
Utility Relocation (Construction)	GDOT, Utility owner
Letting to Contract	GDOT
Construction Supervision	GDOT
Providing Material Pits	Contractor
Providing Detours	GDOT
Environmental Studies, Documents, & Permits	HNTB
Environmental Mitigation	GDOT
Construction Inspection & Materials Testing	GDOT

Project Cost Estimate Summary and Funding Responsibilities:

	Breakdown of PE	ROW	Utility*	CST**	Mitigation	Total Cost
Funded By	GDOT	GDOT	GDOT	GDOT	GDOT	
$ Amount	$3,447,118	$26,585,000	$2,579,191	$56,235,471	$2,783,440	$91,630,220
Date of Estimate	4/1/2015	1/8/2016	4/10/2015	8/27/2015	9/2/2015	

*CST Cost includes: Construction, Engineering and Inspection, Contingencies and Liquid AC Cost Adjustment.

ALTERNATIVES DISCUSSION

Alternative selection:

Preferred Alternative: The proposed alignment will generally follow the existing roadway from Young Harris St in Blairsville to a proposed roundabout at Brasstown Creek Rd. Corrections to the alignment and profile along that section will be made in order to accommodate a 55 mph design speed, and to avoid a number of historic and environmental resources from Young Harris St to Towns/Union county line.

A proposed two-lane, two-way bypass will split off from the existing alignment at a proposed roundabout at Brasstown Creek Rd. The two-lane bypass will travel to the west of and around downtown Young Harris to the tie-in at another proposed roundabout at Timberline Dr. The existing 3-lane section through Young Harris would remain in its existing condition.

Typical Section 1:

Four 12-foot wide travel lanes, 14-foot two-way left turn lane with 10-foot wide urban shoulders with sidewalks from ¼ mile west of Plottown Rd/CR 43 to proposed roundabout at Brasstown Creek Rd in Young Harris.

Typical Section 2:

Two 12-foot wide outside travel lanes, two 11-foot wide inside travel lanes, 32-foot depressed median with 10-foot wide rural shoulders from Industrial Blvd/CR 302 in Blairsville to ¼ mile west of Plottown Rd in Young Harris.

Typical Section 3:

Two 12-foot wide travel lanes with 10-foot wide rural shoulders from proposed roundabout at Brasstown Creek Rd to the other proposed roundabout the tie-in with the existing four-lane at Timberline Dr in Young Harris.

The preferred alternative impacts approximately 3,423 LF of perennial and intermittent stream channel, and 0.56 acres of wetlands and ephemeral stream channel.

Estimated Property Impacts:	**168 Parcels**	**Estimated Total Cost:**	**$91,630,220**
Estimated ROW Cost:	**$26,585,000**	**Estimated CST Time:**	**36 months**

Rationale: This alternative was selected because it met the goals outlined in the approved Need and Purpose. The alignment chosen was the best-fit in terms of avoidance of streams, wetlands, and historic properties. This alternative also included roundabouts which are the preferred intersection type for new location roads like the Young Harris Bypass.

Public comments from both Public Information Open House meetings (PIOH) showed 20 attendees who supported the project chose the Preferred Alternative. The most common rationale for their support was the fact that this alternative proposed the fewest impacts to the existing downtown and adjacent residential neighborhoods.

No-Build Alternative: Project not constructed

Estimated Property Impacts:	**0**	**Estimated Total Cost:**	**0**
Estimated ROW Cost:	**0**	**Estimated CST Time:**	**0**

Rationale: This alternative will be operating at an unacceptable Level of Service F for the design year (2039) traffic and therefore does not meet the objectives of the Approved Need and Purpose.

Alternative 1: The proposed alignment will generally follow the existing roadway from Young Harris St in Blairsville to a proposed traffic signal at Swanson Rd. Corrections to the alignment and profile along that section will be made in order to accommodate a 55 mph design speed, and to avoid a number of historic and environmental resources from Young Harris St to Towns/Union county line.

A proposed two-lane, two-way bypass will split off from the existing alignment at a proposed traffic signal near Swanson Rd. The two-lane bypass will travel to the west of and around downtown Young Harris to the tie-in at another proposed traffic signal at Timberline Dr. The existing 3-lane section through Young Harris would remain in its existing condition.

Typical Section 1:

Four 12-foot wide travel lanes, 14-foot two-way left turn lane with 10-foot wide urban shoulders with sidewalks from ¼ mile west of Plottown Rd/CR 43 to proposed traffic signal at Swanson Rd in Young Harris.

Typical Section 2:

Four 12-foot wide travel lanes, 32-foot depressed median with 10-foot wide rural shoulders from Industrial Blvd/CR 302 in Blairsville to ¼ mile west of Plottown Rd in Young Harris.

Typical Section 3:

Two 12-foot wide travel lanes with 10-foot wide rural shoulders from proposed traffic signal at Swanson Rd to the other proposed traffic signal at the tie-in with the existing four-lane at Timberline Dr in Young Harris.

Alternative 1 impacts approximately 3,521 LF of perennial and intermittent stream channel, and 0.95 acres of wetlands and ephemeral stream channel.

Estimated Property Impacts:	**178 Parcels**	**Estimated Total Cost:**	**$93,093,690**
Estimated ROW Cost:	**$29,560,000**	**Estimated CST Time:**	**36 months**

Rationale: This alternative included a bypass around the west side of Young Harris, similar to the Preferred Alternative, but was not chosen because the bypass began and ended at traffic signals instead of roundabouts.

Alternative 2: The proposed alignment will maintain existing alignment, with horizontal and vertical improvements as necessary to meet current design standards and slight alignment shifts to minimize impacts in sensitive areas from Young Harris St to Towns/Union county line. Corrections to the alignment and profile along that section will be made in order to accommodate a 55 mph design speed, and to avoid a number of historic and environmental resources.

A proposed two-lane, two-way bypass will split off from the existing alignment just east of Sampson Rd. The two-lane bypass will travel to the west of and around downtown Young Harris to the tie-in at the existing four-lane at Timberline Dr. The Alternative 2A and 2B alignments cause more impacts to the existing neighborhoods immediately to the west of downtown Young Harris. The existing 3-lane section through Young Harris would remain as-is.

Typical Section 1:

Four 12-foot wide travel lanes, 14-foot two-way left turn lane with 10-foot wide urban shoulders with sidewalks from ¼ mile west of Plottown Rd/CR 43 to just east of Sampson Rd in Young Harris.

Typical Section 2:

Four 12-foot wide travel lanes, 32-foot depressed median with 10-foot wide rural shoulders from Industrial Blvd/CR 302 in Blairsville to ¼ mile west of Plottown Rd in Young Harris.

Typical Section 3:

Two 12-foot lanes from just east of Sampson Rd on new location to the tie-in with the existing

four-lane at Timberline Dr in Young Harris.

Alternative 2 impacts approximately 3,475 LF of perennial and intermittent stream channel, and 0.95 acres of wetlands and ephemeral stream channel.

Estimated Property Impacts:	**186 Parcels**	**Estimated Total Cost:**	**$93,293,690**
Estimated ROW Cost:	**$29,760,000**	**Estimated CST Time:**	**36 months**

Rationale: This alternative was not chosen because it would cause undue impacts to businesses and residences in downtown Young Harris. This alternative would include considerable impacts to as many as 7 historic properties. It also brings greater hazards to pedestrian traffic since Young Harris College will be expanding its campus to the west side of SR 515 in the near future as part of the school's master plan.

Public comments from both Public Information Open House meetings (PIOH) showed 5 attendees who supported the project chose Alternative 2. The most common rationale for their support was the fact that this alternative would force all traffic through downtown and maximize exposure to the College and downtown businesses. Those who oppose Alternative 2 cited the impacts to the college and pedestrian traffic.

Alternative 3: : The proposed alignment will generally follow the existing roadway from Young Harris St in Blairsville to the project terminus at Timberline Dr in Young Harris. Corrections to the alignment and profile along the rural section will be made in order to accommodate a 55 mph design speed, and to avoid a number of historic and environmental resources from Glen Gooch Bypass to Towns/Union county line. The section within the city limits of Blairsville and Young Harris will follow the existing alignment and maintain the 35 mph design speed.

Typical Section 1:

Four 12-foot wide travel lanes, 14-foot two-way left turn lane with 10-foot wide urban shoulders with sidewalks from Young Harris St to ¼ mile east of Glen Gooch Bypass in Blairsville; and from ¼ mile west of Plottown Rd/CR 43 to the project terminus at Timberline Dr in Young Harris.

Typical Section 2:

Four 12-foot wide travel lanes, 32-foot depressed median with 10-foot wide rural shoulders from Industrial Blvd/CR 302 in Blairsville to ¼ mile west of Plottown Rd in Young Harris.

Alternative 3 impacts approximately 3,250 LF of perennial and intermittent stream channel, and 0.95 acres of wetlands and ephemeral stream channel.

Estimated Property Impacts:	**175 Parcels**	**Estimated Total Cost:**	**$91,493,690**
Estimated ROW Cost:	**$27,960,000**	**Estimated CST Time:**	**36 months**

Rationale: This alternative was not selected primarily because of the higher right-of-way and overall project cost. This alternative would include impacts to as many as 12 historic properties. It also brings greater hazards to pedestrian traffic since Young Harris College will be expanding its campus to the west side of SR 515 in the near future as part of the school's master plan.

Public comments from both Public Information Open House meetings (PIOH) showed 5 attendees who supported the project chose Alternative 3. The most common rationale for their support was the fact that this alternative would force all traffic through downtown and maximize exposure to the College and downtown businesses. Those who oppose Alternative 3 cited the impacts to the college and pedestrian traffic.

Comments: None

LIST OF ATTACHMENTS/SUPPORTING DATA

1. Concept Layouts
    a. Preferred Alternative (Entire project corridor)
    b. Bypass Alternatives (Young Harris only)
2. Typical sections
3. Detailed cost estimates:
    a. Construction including Engineering and Inspection and Contingencies
    b. Completed Liquid AC Cost Adjustment forms
    c. Right-of-Way
    d. Utilities
    e. Environmental Mitigation (EPD, etc.)
4. Crash summaries (contained within Need and Purpose)
5. Traffic diagrams
6. Capacity analysis summary
7. Roundabout Data
    a. Lighting agreement or commitment letter
    b. Peer Review and responses
8. S I & A Reports
9. Minutes of concept meetings
10. Minutes of any meetings that shows support or objection to the concept
11. VE Implementation Letter
12. Practical Alternatives Report (PAR)
13. Pavement Type Selection Memo
14. Pavement Evaluation Summary

APPROVALS

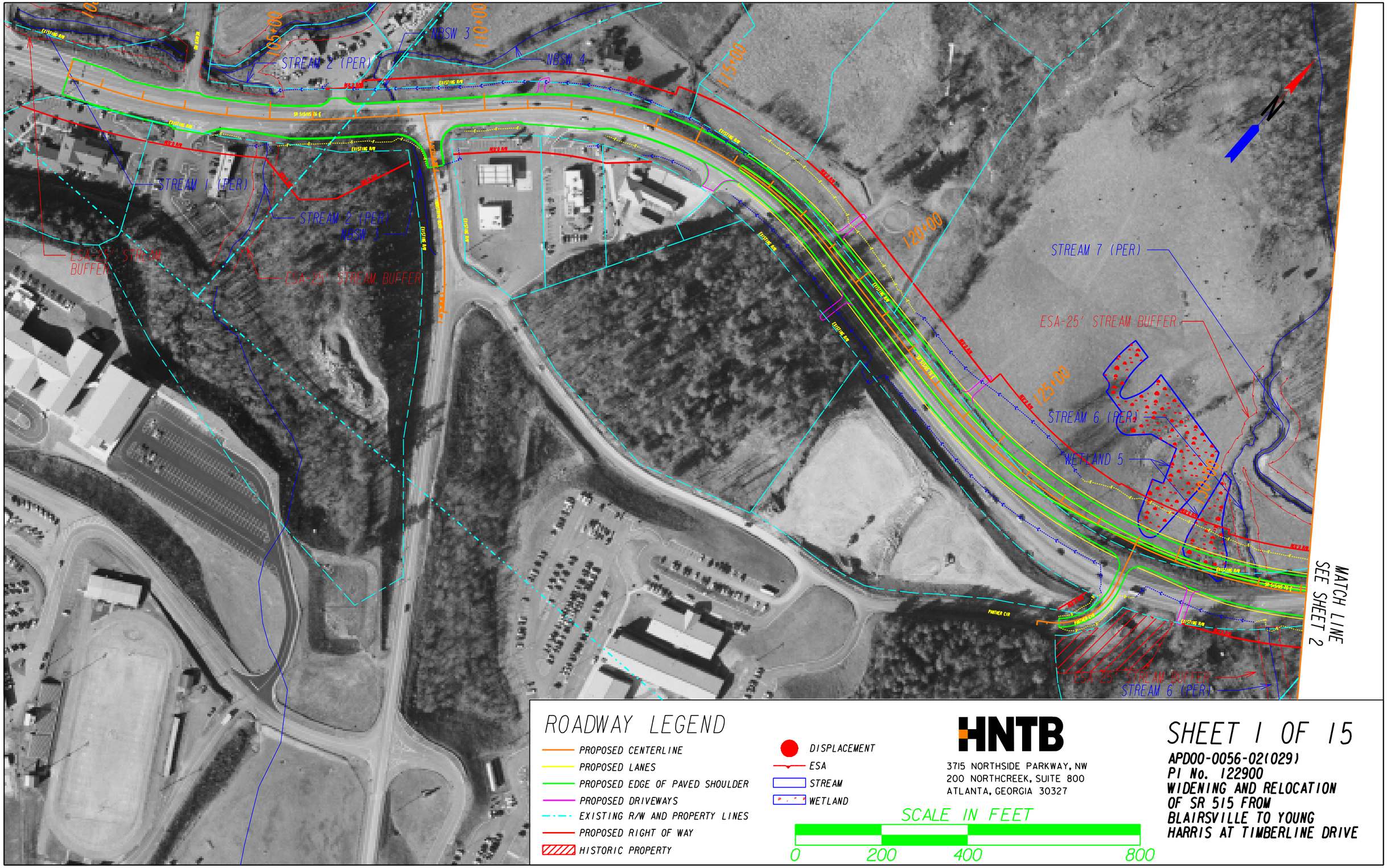
Concur: Hiral Patel
Director of Engineering

Approve: Margaret B. Pinkl 4.11.16
Chief Engineer Date

CONCEPT REPORT

ATTACHMENT 1a

CONCEPT LAYOUT
PREFERRED ALTERNATIVE



ROADWAY LEGEND

- PROPOSED CENTERLINE
- PROPOSED LANES
- PROPOSED EDGE OF PAVED SHOULDER
- PROPOSED DRIVEWAYS
- EXISTING R/W AND PROPERTY LINES
- PROPOSED RIGHT OF WAY
- HISTORIC PROPERTY

- DISPLACEMENT
- ESA
- STREAM
- WETLAND

SCALE IN FEET

0 200 400 800

HNTB
3715 NORTHSIDE PARKWAY, NW
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327

SHEET 1 OF 15

APD00-0056-02(029)
PI No. 122900
WIDENING AND RELOCATION
OF SR 515 FROM
BLAIRSVILLE TO YOUNG
HARRIS AT TIMBERLINE DRIVE

STREAM 8 (PER)

ESA-25' STREAM BUFFER

155+00

150+00

160+00

N

MATCH LINE
SEE SHEET 3

ESA-25' STREAM BUFFER

BUTTERNUT CREEK

145+00

STREAM 7 (PER)

140+00

135+00

STREAM 8 (PER)

ESA-25' STREAM BUFFER

RIGHT FROM
BUTTERNUT CREEK

MATCH LINE
SEE SHEET 1

ROADWAY LEGEND

- PROPOSED CENTERLINE
- PROPOSED LANES
- PROPOSED EDGE OF PAVED SHOULDER
- PROPOSED DRIVEWAYS
- EXISTING R/W AND PROPERTY LINES
- PROPOSED RIGHT OF WAY
- HISTORIC PROPERTY
- DISPLACEMENT
- ESA
- STREAM
- WETLAND

SCALE IN FEET

0 200 400 800

HNTB
3715 NORTHSIDE PARKWAY, NW
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327

SHEET 2 OF 15

APD00-0056-02(029)
PI No. 122900
WIDENING AND RELOCATION
OF SR 515 FROM
BLAIRSVILLE TO YOUNG
HARRIS AT TIMBERLINE DRIVE

RETAINING WALL

ESA-25' STREAM BUFFER

STREAM 10 (PER)

STREAM 9 (PER)

ESA-25' STREAM BUFFER

BUTTERNUT CREEK

ESA-25' STREAM BUFFER

ESA-25' STREAM BUFFER

STREAM 10 (PER)

RETAINING WALL

STREAM 11 (PER)

RETAINING WALL

STREAM 9 (INT)

ESA-25' STREAM BUFFER

MATCH LINE
SEE SHEET 2

MATCH LINE
SEE SHEET 4

ROADWAY LEGEND

- PROPOSED CENTERLINE
- PROPOSED LANES
- PROPOSED EDGE OF PAVED SHOULDER
- PROPOSED DRIVEWAYS
- EXISTING R/W AND PROPERTY LINES
- PROPOSED RIGHT OF WAY
- HISTORIC PROPERTY

- DISPLACEMENT
- ESA
- STREAM
- WETLAND

SCALE IN FEET

0 200 400 800

HNTB
3715 NORTHSIDE PARKWAY, NW
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327

SHEET 3 OF 15

APD00-0056-02(029)
PI No. 122900
WIDENING AND RELOCATION
OF SR 515 FROM
BLAIRSVILLE TO YOUNG
HARRIS AT TIMBERLINE DRIVE

MATCH LINE
SEE SHEET 3

STREAM 13 (PER)

ESA 25' STREAM BUFFER

195+00

200+00

205+00

STREAM 14 (INT)

210+00

ESA 25' STREAM BUFFER

STREAM 15 (PER)

215+00

ESA 25' STREAM BUFFER

STREAM 14A (PER)

220+00

NBSW 12

RETAINING WALL

MATCH LINE
SEE SHEET 5

ROADWAY LEGEND

- PROPOSED CENTERLINE
- PROPOSED LANES
- PROPOSED EDGE OF PAVED SHOULDER
- PROPOSED DRIVEWAYS
- EXISTING R/W AND PROPERTY LINES
- PROPOSED RIGHT OF WAY
- HISTORIC PROPERTY

- DISPLACEMENT
- ESA
- STREAM
- WETLAND

SCALE IN FEET

0 200 400 800

HNTB
3715 NORTHSIDE PARKWAY, NW
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327

SHEET 4 OF 15

APD00-0056-02(029)
PI No. 122900
WIDENING AND RELOCATION
OF SR 515 FROM
BLAIRSVILLE TO YOUNG
HARRIS AT TIMBERLINE DRIVE

MATCH LINE
SEE SHEET 4

MATCH LINE
SEE SHEET 6

STREAM 15 (PER)

ESA-25' STREAM BUFFER

BUTTERNUT CREEK

225+00

230+00

STREAM 16 (INT)

ESA-25' STREAM BUFFER

STREAM 17 (PER)

235+00

240+00

245+00

250+00

N

WETLAND 20

EPHEMERAL 19

STREAM 16 (INT)

ESA-25' STREAM BUFFER

STREAM 17 (PER)

NBSW 18

ESA-25' STREAM BUFFER

ESA-25' STREAM BUFFER

ROADWAY LEGEND

- PROPOSED CENTERLINE
- PROPOSED LANES
- PROPOSED EDGE OF PAVED SHOULDER
- PROPOSED DRIVEWAYS
- EXISTING R/W AND PROPERTY LINES
- PROPOSED RIGHT OF WAY
- HISTORIC PROPERTY

- DISPLACEMENT
- ESA
- STREAM
- WETLAND

SCALE IN FEET

0 200 400 800

HNTB
3715 NORTHSIDE PARKWAY, NW
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327

SHEET 5 OF 15

APD00-0056-02(029)
PI No. 122900
WIDENING AND RELOCATION
OF SR 515 FROM
BLAIRSVILLE TO YOUNG
HARRIS AT TIMBERLINE DRIVE

STREAM 23 (INT)
WETLAND 25
N
MATCH LINE
SEE SHEET 7
275+00
280+00
285+00
270+00
265+00
260+00
255+00
ESA-25' STREAM BUFFER
STREAM 21 (INT)
STREAM 23 (INT)
WETLAND 24
ESA-25' STREAM BUFFER
STREAM 22 (PER)
EPHEMERAL 26
MATCH LINE
SEE SHEET 5
WETLAND 20
STREAM 21 (INT)
ESA-25' STREAM BUFFER
ESA-25' STREAM BUFFER

ROADWAY LEGEND

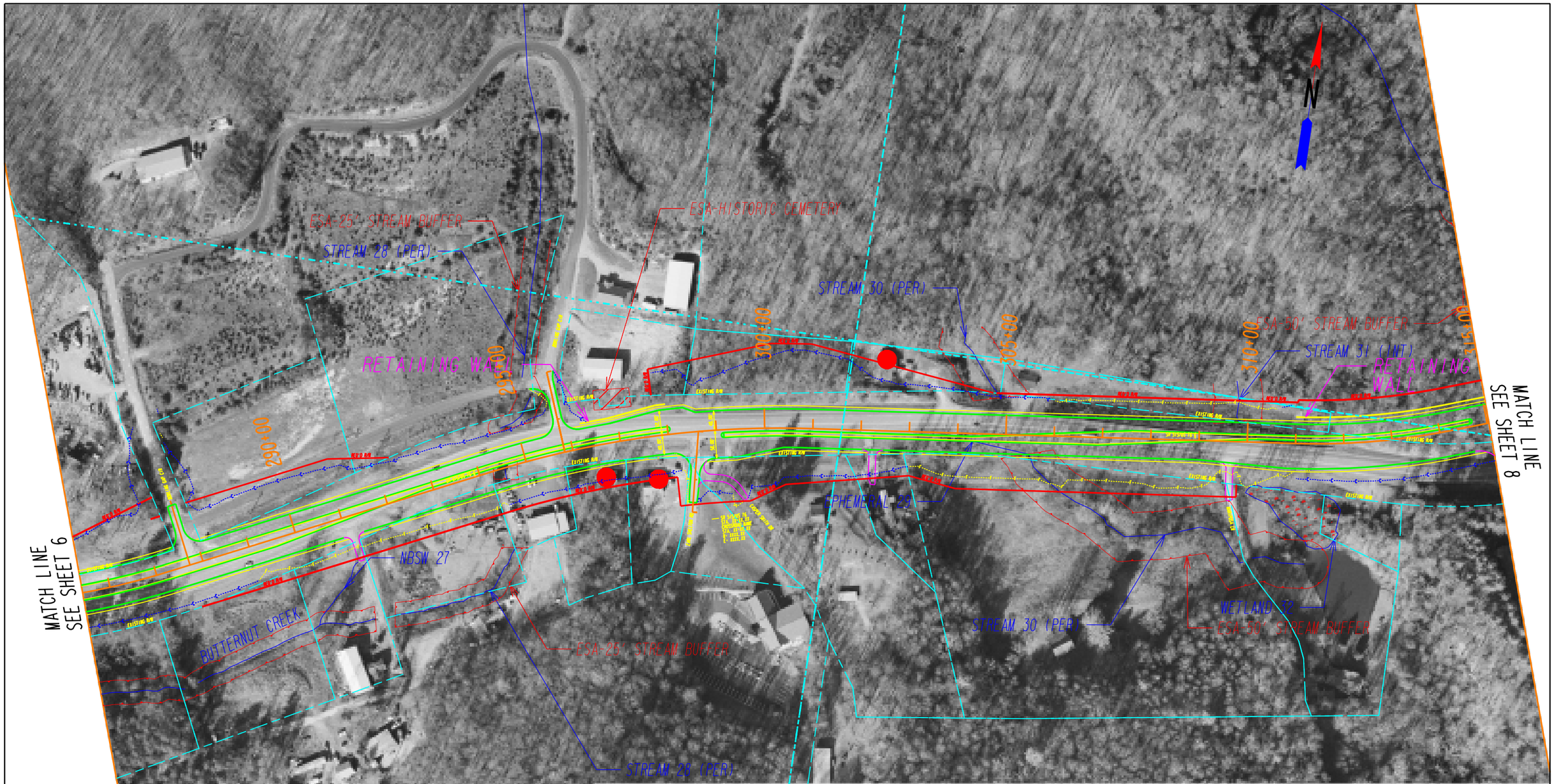
- PROPOSED CENTERLINE
- PROPOSED LANES
- PROPOSED EDGE OF PAVED SHOULDER
- PROPOSED DRIVEWAYS
- EXISTING R/W AND PROPERTY LINES
- PROPOSED RIGHT OF WAY
- HISTORIC PROPERTY
- DISPLACEMENT
- ESA
- STREAM
- WETLAND

HNTB
3715 NORTHSIDE PARKWAY, NW
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327

SCALE IN FEET
0 200 400 800

SHEET 6 OF 15

APD00-0056-02(029)
PI No. 122900
WIDENING AND RELOCATION
OF SR 515 FROM
BLAIRSVILLE TO YOUNG
HARRIS AT TIMBERLINE DRIVE



ROADWAY LEGEND

- PROPOSED CENTERLINE
- PROPOSED LANES
- PROPOSED EDGE OF PAVED SHOULDER
- PROPOSED DRIVEWAYS
- EXISTING R/W AND PROPERTY LINES
- PROPOSED RIGHT OF WAY
- HISTORIC PROPERTY
- DISPLACEMENT
- ESA
- STREAM
- WETLAND

SCALE IN FEET

0 200 400 800

HNTB
3715 NORTHSIDE PARKWAY, NW
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327

SHEET 7 OF 15

APD00-0056-02(029)
PI No. 122900
WIDENING AND RELOCATION OF SR 515 FROM BLAIRSVILLE TO YOUNG HARRIS AT TIMBERLINE DRIVE

STREAM 33 (PER)
ESA-50' STREAM BUFFER
RETAINING WALL
320+00
STREAM 35 (INT)
EPHEMERAL 36
325+00
ESA - PROTECTED PLANT POP
25' BUFFER
EPHEMERAL 38
STREAM 37
(INT)
330+00
335+00
340+00
STREAM 39 (INT)
MATCH LINE
SEE SHEET 7
STREAM 35 (INT)
ESA-50' STREAM BUFFER
STREAM 33 (PER)
STREAM 34 (INT)
ESA-50' STREAM BUFFER
STREAM 37 (PER)
STREAM 39 (INT)
STREAM 37 (INT)
BITTER CREEK
ESA-50' STREAM BUFFER
MATCH LINE
SEE SHEET 9
N

ROADWAY LEGEND

- PROPOSED CENTERLINE
- PROPOSED LANES
- PROPOSED EDGE OF PAVED SHOULDER
- PROPOSED DRIVEWAYS
- EXISTING R/W AND PROPERTY LINES
- PROPOSED RIGHT OF WAY
- HISTORIC PROPERTY
- DISPLACEMENT
- ESA
- STREAM
- WETLAND

SCALE IN FEET

0 200 400 800

HNTB
3715 NORTHSIDE PARKWAY, NW
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327

APD00-0056-02(029)
PI No. 122900
WIDENING AND RELOCATION
OF SR 515 FROM
BLAIRSVILLE TO YOUNG
HARRIS AT TIMBERLINE DRIVE

MATCH LINE
SEE SHEET 8

MATCH LINE
SEE SHEET 10

NBSW 40

NBSW 40

STREAM 41 (PER)

ESA-50' STREAM BUFFER

STREAM 42 (PER)

ESA-50' STREAM BUFFER

ESA - PROTECTED PLANT POP
25' BUFFER

ESA-ARCHAEOLOGICAL AREA

EPHEMERAL 43

STREAM 44 (INT)

ESA-50' STREAM BUFFER

ESA-50' STREAM BUFFER

345+00

350+00

355+00

360+00

365+00

370+00

N

ROADWAY LEGEND

- PROPOSED CENTERLINE
- PROPOSED LANES
- PROPOSED EDGE OF PAVED SHOULDER
- PROPOSED DRIVEWAYS
- EXISTING R/W AND PROPERTY LINES
- PROPOSED RIGHT OF WAY
- HISTORIC PROPERTY
- DISPLACEMENT
- ESA
- STREAM
- WETLAND

SCALE IN FEET

0 200 400 800

HNTB
3715 NORTHSIDE PARKWAY, NW
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327

SHEET 9 OF 15

APD00-0056-02(029)
PI No. 122900
WIDENING AND RELOCATION
OF SR 515 FROM
BLAIRSVILLE TO YOUNG
HARRIS AT TIMBERLINE DRIVE

MATCH LINE
SEE SHEET 9

CALDWELL BRANCH

ESA-50' STREAM BUFFER

STREAM 45 (PER)

STREAM 48
(INT, NBOF)

375+00

380+00

385+00

390+00

NBSW 48

WETLAND 49

394+00

400+00

NBSW 47

ESA-50'
STREAM
BUFFER

WETLAND 46

ESA-50' STREAM BUFFER

STREAM 45 (PER)

STREAM 48-A (INT)

ESA-50' STREAM BUFFER

STREAM 50 (INT)

BITTER
CREEK

STEPHENS BRANCH

ESA-50' STREAM BUFFER

ESA-50' STREAM BUFFER

STREAM 51
(PER)

MATCH LINE
SEE SHEET 11

N

ROADWAY LEGEND

- PROPOSED CENTERLINE
- PROPOSED LANES
- PROPOSED EDGE OF PAVED SHOULDER
- PROPOSED DRIVEWAYS
- EXISTING R/W AND PROPERTY LINES
- PROPOSED RIGHT OF WAY
- HISTORIC PROPERTY

- DISPLACEMENT
- ESA
- STREAM
- WETLAND

HNTB
3715 NORTHSIDE PARKWAY, NW
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327

SCALE IN FEET

0 200 400 800

SHEET 10 OF 15

APD00-0056-02(029)
PI No. 122900
WIDENING AND RELOCATION
OF SR 515 FROM
BLAIRSVILLE TO YOUNG
HARRIS AT TIMBERLINE DRIVE

BEGIN BRIDGE 2
STA. 407+26.00

END BRIDGE 2
STA. 408+35.50

ESA-50' STREAM BUFFER

415+00

420+00

425+00

430+00

435+00

ESA-50' STREAM BUFFER

STREAM 53 (PER)

BRASSTOWN CREEK

405+00

410+00

MATCH LINE
SEE SHEET 10

STREAM 52 (PER)

END BRIDGE 1
STA. 408+25.40

BEGIN BRIDGE 1
STA. 407+14.00

MATCH LINE
SEE SHEET 12

ROADWAY LEGEND

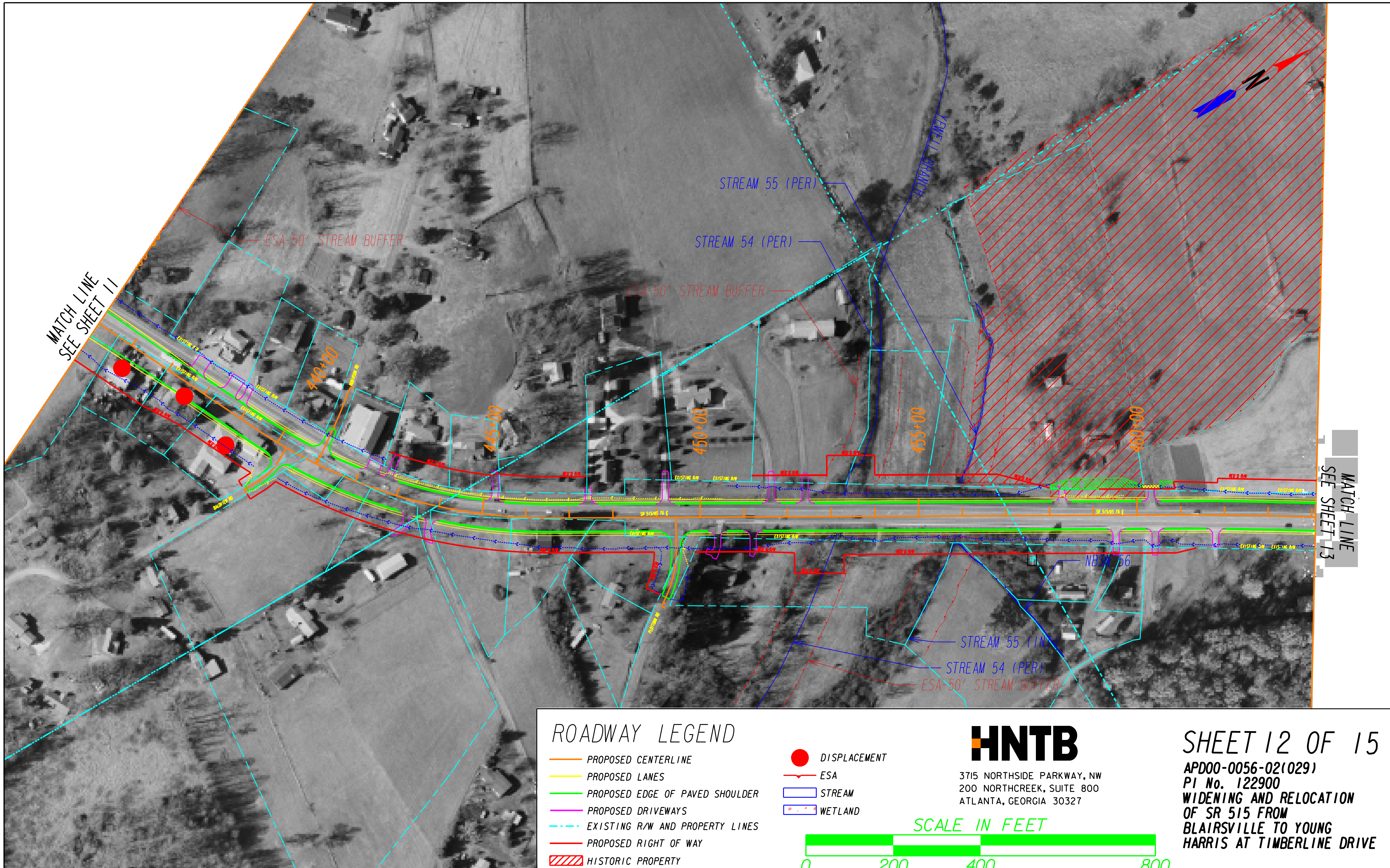
- PROPOSED CENTERLINE
- PROPOSED LANES
- PROPOSED EDGE OF PAVED SHOULDER
- PROPOSED DRIVEWAYS
- EXISTING R/W AND PROPERTY LINES
- PROPOSED RIGHT OF WAY
- HISTORIC PROPERTY
- DISPLACEMENT
- ESA
- STREAM
- WETLAND

SCALE IN FEET

0 200 400 800

HNTB
3715 NORTHSIDE PARKWAY, NW
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327

APD00-0056-02(029)
PI No. 122900
WIDENING AND RELOCATION
OF SR 515 FROM
BLAIRSVILLE TO YOUNG
HARRIS AT TIMBERLINE DRIVE



ROADWAY LEGEND

PROPOSED CENTERLINE
PROPOSED LANES
PROPOSED EDGE OF PAVED SHOULDER
PROPOSED DRIVEWAYS
EXISTING R/W AND PROPERTY LINES
PROPOSED RIGHT OF WAY
▨ HISTORIC PROPERTY

● DISPLACEMENT
ESA
STREAM
WETLAND

SCALE IN FEET
0 200 400 800

HNTB
3715 NORTHSIDE PARKWAY, NW
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327

SHEET 12 OF 15

APD00-0056-02(029)
PI No. 122900
WIDENING AND RELOCATION
OF SR 515 FROM
BLAIRSVILLE TO YOUNG
HARRIS AT TIMBERLINE DRIVE

MATCH LINE
SEE SHEET 14

MATCH LINE
SEE SHEET 12

STREAM 61 (PER)

ESA 50' STREAM BUFFER

ESA 50'
STREAM BUFFER

STREAM 60 (PER)

NBSW 58

NBSW 59

STREAM 60 (PER)

NBSW 57

465+00

470+00

475+00

480+00

485+00

490+00

495+00

ROADWAY LEGEND

- PROPOSED CENTERLINE
- PROPOSED LANES
- PROPOSED EDGE OF PAVED SHOULDER
- PROPOSED DRIVEWAYS
- EXISTING R/W AND PROPERTY LINES
- PROPOSED RIGHT OF WAY
- HISTORIC PROPERTY
- DISPLACEMENT
- ESA
- STREAM
- WETLAND

HNTB
3715 NORTHSIDE PARKWAY, NW
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327

SCALE IN FEET

0 200 400 800

SHEET 13 OF 15

APD00-0056-02(029)
PI No. 122900
WIDENING AND RELOCATION
OF SR 515 FROM
BLAIRSVILLE TO YOUNG
HARRIS AT TIMBERLINE DRIVE

MATCH LINE
SEE SHEET 13

ESA-ARCHAEOLOGICAL AREA

9T0302

1015+00

1020+00

1025+00

1030+00

1035+00

ESA-50' STREAM BUFFER

STREAM 61 (PER)

ESA-50' STREAM BUFFER

ESA-50' STREAM BUFFER

STREAM 61 (PER)

9T025

040+00

STREAM 63 (PER)

ESA-50' STREAM BUFFER

STREAM (INT. WBDF)

MATCH LINE
SEE SHEET 15

ROADWAY LEGEND

- PROPOSED CENTERLINE
- PROPOSED LANES
- PROPOSED EDGE OF PAVED SHOULDER
- PROPOSED DRIVEWAYS
- EXISTING R/W AND PROPERTY LINES
- PROPOSED RIGHT OF WAY
- HISTORIC PROPERTY
- DISPLACEMENT
- ESA
- STREAM
- WETLAND

HNTB
3715 NORTHSIDE PARKWAY, NW
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327

SCALE IN FEET

0 200 400 800

SHEET 14 OF 15

APD00-0056-02(029)
PI No. 122900
WIDENING AND RELOCATION
OF SR 515 FROM
BLAIRSVILLE TO YOUNG
HARRIS AT TIMBERLINE DRIVE

MATCH LINE
SEE SHEET 14

9T025

9T0294

ESA ARCHAEOLOGICAL AREA

ESA ARCHAEOLOGICAL AREA

ESA-50' STREAM BUFFER

STREAM 66 (PER)

OPEN WATER

COOK CREEK

ESA-50' STREAM BUFFER

STREAM 66 (PER)

ESA - 25' OPEN WATER BUFFER

1045+00

1050+00

1055+00

1060+00

1065+00

1070+00

540+00

530+00

525+00

520+00

N

ROADWAY LEGEND

- PROPOSED CENTERLINE
- PROPOSED LANES
- PROPOSED EDGE OF PAVED SHOULDER
- PROPOSED DRIVEWAYS
- EXISTING R/W AND PROPERTY LINES
- PROPOSED RIGHT OF WAY
- HISTORIC PROPERTY
- DISPLACEMENT
- ESA
- STREAM
- WETLAND

SCALE IN FEET

0 200 400 800

HNTB
3715 NORTHSIDE PARKWAY, NW
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327

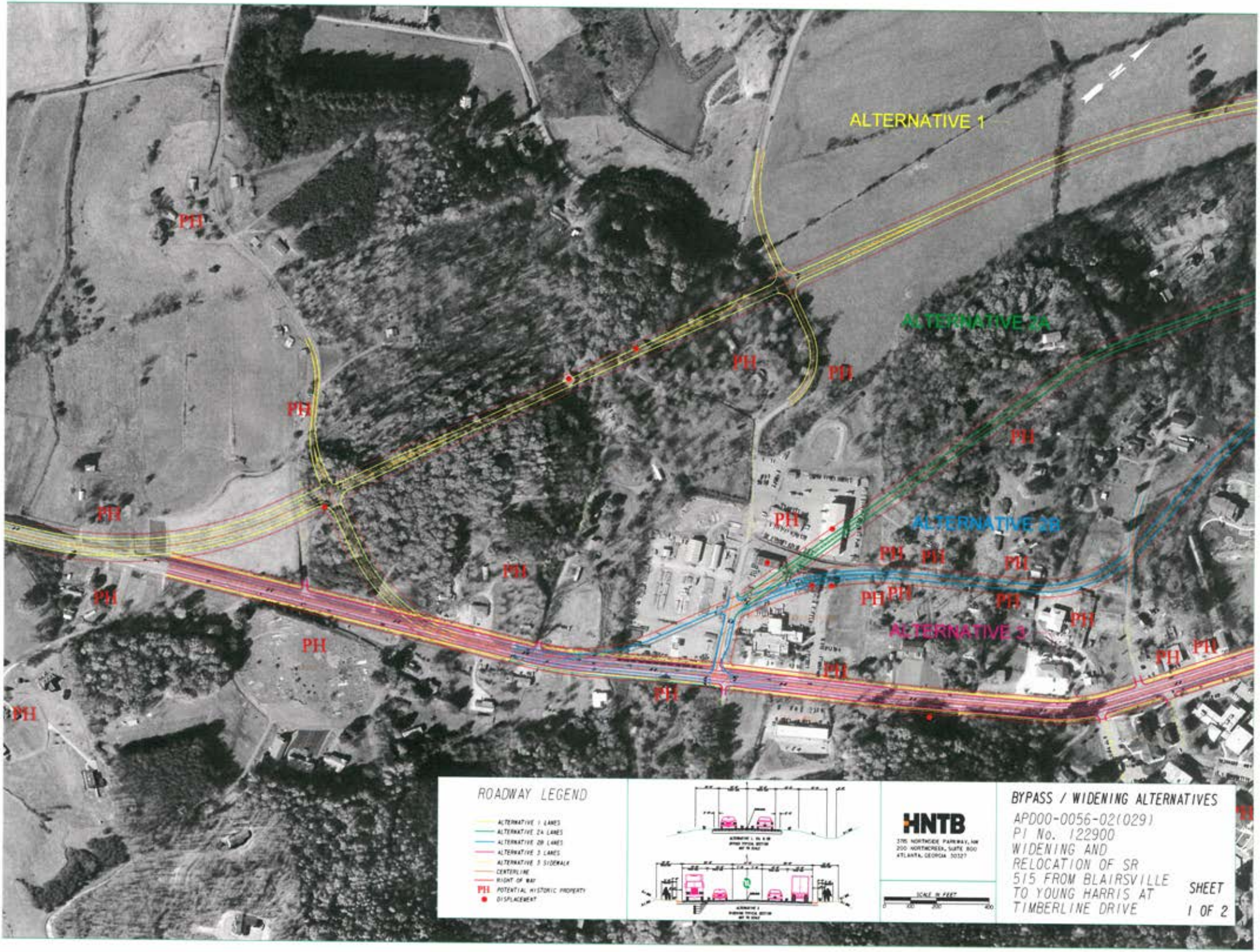
SHEET 15 OF 15

APD00-0056-02(029)
PI No. 122900
WIDENING AND RELOCATION
OF SR 515 FROM
BLAIRSVILLE TO YOUNG
HARRIS AT TIMBERLINE DRIVE

CONCEPT REPORT

ATTACHMENT 1b

CONCEPT LAYOUT
BYPASS ALTERNATIVES



ROADWAY LEGEND

- ALTERNATIVE 1 LANES
- ALTERNATIVE 2A LANES
- ALTERNATIVE 2B LANES
- ALTERNATIVE 3 LANES
- ALTERNATIVE 3 SIDEWALK
- CENTERLINE
- RIGHT OF WAY
- PH POTENTIAL HISTORIC PROPERTY
- DISPLACEMENT

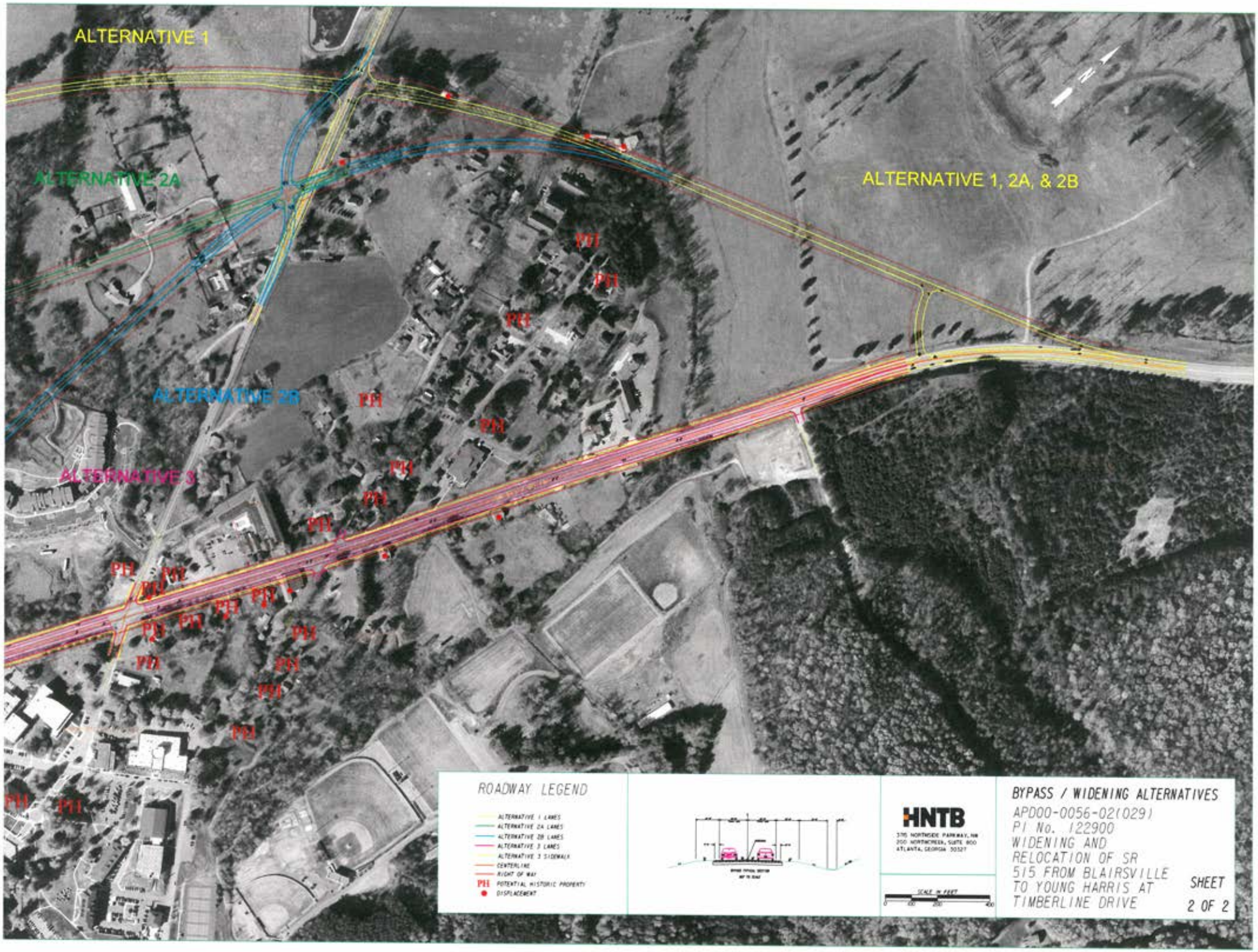
HNTB
3715 NORTHSIDE PARKWAY, NW
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327

SCALE IN FEET
0 200 400

BYPASS / WIDENING ALTERNATIVES

APD00-0056-02(029)
PI No. 122900
WIDENING AND
RELOCATION OF SR
515 FROM BLAIRSVILLE
TO YOUNG HARRIS AT
TIMBERLINE DRIVE

SHEET
1 OF 2

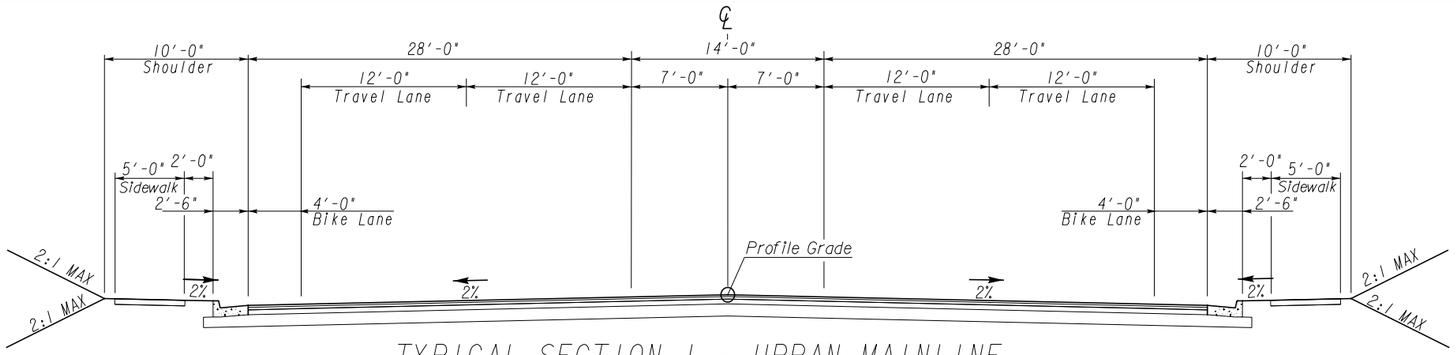

ALTERNATIVE 1
ALTERNATIVE 2A
ALTERNATIVE 1, 2A, & 2B
ALTERNATIVE 2B
ALTERNATIVE 3
PH
ROADWAY LEGEND
ALTERNATIVE 1 LANES
ALTERNATIVE 2A LANES
ALTERNATIVE 2B LANES
ALTERNATIVE 3 LANES
ALTERNATIVE 3 SIDEWALK
CENTERLINE
RIGHT OF WAY
POTENTIAL HISTORIC PROPERTY
DISPLACEMENT
HNTB
3715 NORTHSIDE PARKWAY, NW
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327
SCALE IN FEET
0
200
400
BYPASS / WIDENING ALTERNATIVES
APD00-0056-02(029)
PI No. 122900
WIDENING AND
RELOCATION OF SR
515 FROM BLAIRSVILLE
TO YOUNG HARRIS AT
TIMBERLINE DRIVE
SHEET
2 OF 2

CONCEPT REPORT

ATTACHMENT 2

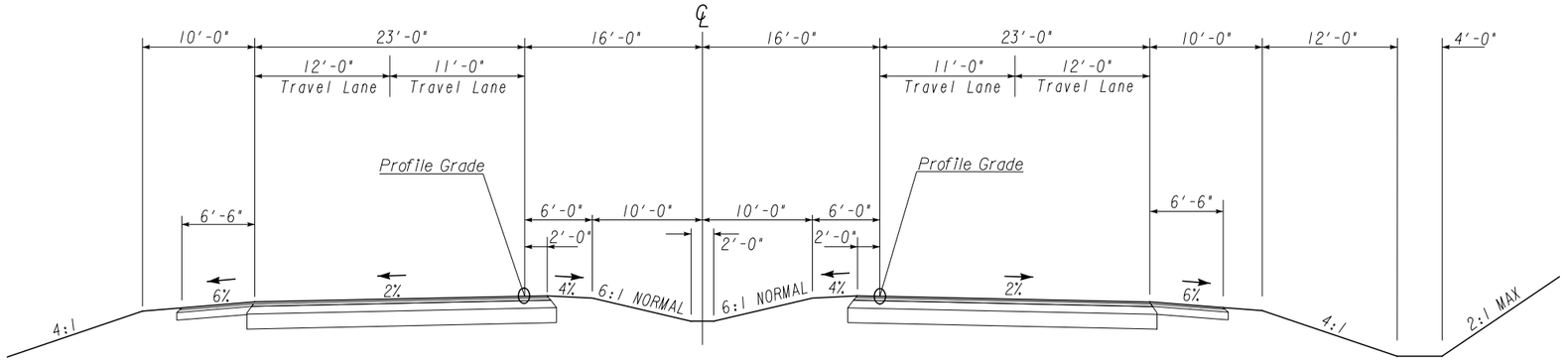
TYPICAL SECTIONS

DATETIME$$	TIME$$	PRF	DGN	COUNTY	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
$USER$		$$PENTABLE$$		UNION, TOWNS			

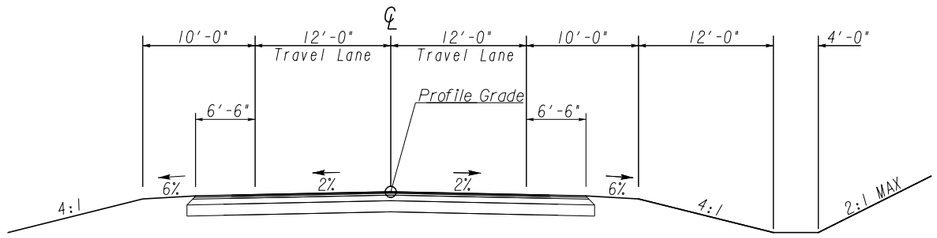


TYPICAL SECTION 1 - URBAN MAINLINE

YOUNG HARRIS ST TO EAST OF INDUSTRIAL BLVD
WEST OF PLOTTOWN RD TO PROPOSED ROUNDABOUT AT BRASSTOWN CREEK RD



TYPICAL SECTION 2 - RURAL MAINLINE
EAST OF INDUSTRIAL BLVD TO WEST OF PLOTTOWN RD



TYPICAL SECTION 3 - RURAL YOUNG HARRIS BYPASS
PROPOSED ROUNDABOUT AT BRASSTOWN CREEK RD TO ROUNDABOUT AT TIMBERLINE DR

			REVISION DATES	STATE OF GEORGIA DEPARTMENT OF TRANSPORTATION
		NO SCALE		OFFICE: PROGRAM DELIVERY
				TYPICAL SECTIONS
				SR 515/2/US 76 FROM BLAIRSVILLE TO YOUNG HARRIS
				DRAWING No. 05-001

GPLN

CONCEPT REPORT

ATTACHMENT 3a

DETAILED COST ESTIMATES
CONSTRUCTION INCLUDING E&I AND CONTINGENCIES

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE P.I. No. **122900** **OFFICE** Program Delivery

PROJECT DESCRIPTION
SR 515/2/US 76 FM E BLAIRSVILLE TO YOUNG HARRIS @ TIMBERLINE DR

DATE January 11, 2016

From: Albert V. Shelby, State Program Delivery Engineer

To: Lisa L. Myers, State Project Review Engineer

Subject: REVISIONS TO PROGRAMMED COSTS

PROJECT MANAGER Steve Adewale, CPEng, P.E.

MGMT LET DATE 3/15/2017

MGMT ROW DATE 9/15/2015

PROGRAMMED COSTS (TPro W/OUT INFLATION)			**LAST ESTIMATE UPDATE**	
CONSTRUCTION	**$**	51,050,364.00	DATE	9/26/2014
RIGHT OF WAY	**$**	25,960,000.00	DATE	9/26/2014
UTILITIES	**$**	2,528,500.00	DATE	9/26/2014

REVISED COST ESTIMATES

CONSTRUCTION*	**$**	56,235,470.65
RIGHT OF WAY	**$**	26,585,000.00
UTILITIES	**$**	2,579,191.00

*Cost Contains **10** % Contingency

REASONS FOR COST INCREASE AND CONTINGENCY JUSTIFICATION:

The RW Cost Estimate has increased due to a recent update.

CONTINGENCY SUMMARY

A.	**CONSTRUCTION COST ESTIMATE:**	$ 46,738,553.55	Base Estimate From CES		
B.	**ENGINEERING AND INSPECTION (E & I):**	$ 2,336,927.68	Base Estimate (A) x	5	%
C.	**CONTINGENCY:**	$ 4,907,548.12	Base Estimate (A) + E & I (B) x	10	%
			See % Table in "Risk Based Cost Estimation" Memo		
D.	**TOTAL LIQUID AC ADJUSTMENT:**	$ 2,252,441.30	Total From Liquid AC Spreadsheet		
E.	**CONSTRUCTION TOTAL:**	$ **56,235,470.65**	(A + B + C + D = E)		

REIMBURSABLE UTILTY COSTS

UTILITY OWNER	REIMBURSABLE COST
Blue Ridge Mountain EMC	$1,715,035
Windstream (Telecommunications)	$864,156
TOTAL	**$ 2,579,191.00**

ATTACHMENTS:

Detailed Cost Estimate Printout From TRAQS
Liquid AC Adjustment Spreadsheet
R/W Cost Estimate
Utility Cost Estimate

JOB ESTIMATE REPORT

JOB NUMBER : 122900_HNTB SPEC YEAR: 01
DESCRIPTION: SR 515/2/US 76 FM E.BLAIRSVILLE TO YOUNG HARRIS @ TIMBERLINE WIDENING

COST GROUPS FOR JOB 122900_HNTB

COST GROUP	DESCRIPTION	QUANTITY	PRICE	AMOUNT	ACTIVE?
DRNGEA	DRAINAGE (EA)				Y
CONC	CONCRETE (SY)				Y
STRO	STRUCTURES, OTHER (SF)				Y
ACTIVE COST GROUP TOTAL				0.00	
INFLATED COST GROUP TOTAL				0.00	

ITEMS FOR JOB 122900_HNTB

LINE	ITEM	ALT	UNITS	DESCRIPTION	QUANTITY	PRICE	AMOUNT
0010	402-3190		TN	RECYL AC 19 MM SP,GP 1 OR 2 ,INC BM&HL	57500.000	61.96	3563145.63
0015	402-3121		TN	RECYL AC 25MM SP,GP1/2,BM&HL	90000.000	60.71	5464345.50
0020	402-3130		TN	RECYL AC 12.5MM SP,GP2,BM&HL	30000.000	71.52	2145624.90
0030	413-1000		GL	BITUM TACK COAT	50000.000	1.79	89533.00
0035	446-1200		SY	PVMT REF FAB FULL WIDTH, TYPE 2	3000.000	7.00	21000.00
0040	456-2012		GLM	INTENT. RUMB. STRIPS - GRND-IN-PL (CONT)	14.000	747.41	10463.78
0045	310-5060		SY	GR AGGR BS CRS 6IN INCL MATL	90200.000	9.04	815953.71
0050	310-5140		SY	GR AGGR BS CRS, 14", INCL MATL	270000.000	20.00	5400000.00
0065	201-1500		LS	CLEARING & GRUBBING - APD00-0056-02(029)	1.000	2325000.00	2325000.00
0070	205-0001		CY	UNCLASS EXCAV	1500000.000	2.88	4330620.00
0085	150-1000		LS	TRAFFIC CONTROL - APD00-0056-02(029)	1.000	2250000.00	2250000.00
0090	432-0206		SY	MILL ASPH CONC PVMT/ 1.50" DEP	27000.000	2.11	57001.86
0100	620-0100		LF	TEMP BARRIER, METHOD NO. 1	8000.000	29.90	239255.04
0105	641-1100		LF	GUARDRAIL, TP T	1100.000	36.17	39792.58
0110	641-1200		LF	GUARDRAIL, TP W	20000.000	17.21	344214.40
0115	641-5001		EA	GUARDRAIL ANCHORAGE, TP 1	30.000	779.94	23398.27
0120	641-5012		EA	GUARDRAIL ANCHORAGE, TP 12	30.000	2057.74	61732.33
0124	439-0022		SY	PLN PC CONC PVMT CL3 10" THK	1000.000	69.77	69770.24
0125	441-5002		LF	CONC HEADER CURB, 6", TP 2	1000.000	15.91	15913.92
0128	441-5008		LF	CONC HEADER CURB, 6 IN, TP 7	1200.000	15.00	18000.00
0129	441-0754		SY	CONC MEDIAN, 7 1/2 IN	3200.000	36.63	117243.39
0130	441-6222		LF	CONC CURB & GUTTER/ 8"X30"TP2	13000.000	22.80	296451.09
0135	153-1300		EA	FIELD ENGINEERS OFFICE TP 3	1.000	80665.38	80665.38
0159	207-0203		CY	FOUND BKFILL MATL, TP II	10000.000	35.03	350316.20
0160	500-3101		CY	CLASS A CONCRETE	2500.000	716.93	1792329.13
0163	500-3800		CY	CL A CONC, INCL REINF STEEL	24.000	1036.07	24865.86
0164	511-1000		LB	BAR REINF STEEL	300000.000	0.66	199374.00
0165	550-1180		LF	STM DR PIPE 18",H 1-10	10000.000	28.49	284977.70
0170	550-1240		LF	STM DR PIPE 24",H 1-10	2000.000	43.90	87806.28

JOB ESTIMATE REPORT

0175	550-1300	LF	STM DR PIPE 30",H 1-10	1000.000	48.91	48917.02
0180	550-1360	LF	STM DR PIPE 36",H 1-10	500.000	72.15	36079.07
0184	550-1600	LF	STM DR PIPE 60",H 1-10	120.000	125.00	15000.00
0185	550-2180	LF	SIDE DR PIPE 18",H 1-10	2000.000	31.23	62475.62
0189	550-1480	LF	STM DR PIPE 48",H 1-10	120.000	118.08	14170.62
0190	550-2240	LF	SIDE DR PIPE 24",H 1-10	1000.000	34.03	34034.83
0195	573-2006	LF	UNDDR PIPE INCL DRAIN AGGR 6"	10000.000	11.66	116684.60
0200	576-1018	LF	SLOPE DRAIN PIPE, 18 IN	1000.000	35.72	35725.32
0205	550-4118	EA	FLARED END SECT 18 IN, SIDE DR	80.000	269.31	21544.94
0210	550-4124	EA	FLARED END SECT 24 IN, SIDE DR	20.000	449.79	8995.93
0215	668-1100	EA	CATCH BASIN, GP 1	40.000	2277.80	91112.08
0220	668-2100	EA	DROP INLET, GP 1	75.000	1775.87	133191.00
0225	668-6000	EA	SPRING BOX	10.000	1487.20	14872.10
0230	603-2024	SY	STN DUMPED RIP RAP, TP 1, 24"	1000.000	36.41	36419.42
0235	603-2182	SY	STN DUMPED RIP RAP, TP 3, 24"	3000.000	42.46	127405.68
0240	603-7000	SY	PLASTIC FILTER FABRIC	4000.000	3.23	12948.32
0245	700-6910	AC	PERMANENT GRASSING	104.000	954.63	99282.54
0250	700-7000	TN	AGRICULTURAL LIME	320.000	67.18	21499.33
0255	700-8000	TN	FERTILIZER MIXED GRADE	100.000	517.74	51774.03
0260	700-8100	LB	FERTILIZER NITROGEN CONTENT	5300.000	1.54	8182.14
0265	710-9000	SY	PERM SOIL REINFORCING MAT	80000.000	3.37	269968.80
0270	716-2000	SY	EROSION CONTROL MATS, SLOPES	200000.000	0.79	158094.00
0275	163-0232	AC	TEMPORARY GRASSING	52.000	164.91	8575.56
0280	163-0240	TN	MULCH	4000.000	115.70	462824.20
0285	163-0300	EA	CONSTRUCTION EXIT	25.000	1318.04	32951.05
0290	163-0520	LF	CONSTR AND REMOVE TEMP PIPE SLOPE DRAIN	5000.000	12.36	61810.75
0295	163-0528	LF	CONSTR AND REM FAB CK DAM -TP C SLT FN	48000.000	2.46	118327.68
0305	163-0541	EA	CONSTR & REM ROCK FILTER DAMS	45.000	518.16	23317.58
0310	163-0550	EA	CONS & REM INLET SEDIMENT TRAP	150.000	141.66	21249.01
0315	165-0010	LF	MAINT OF TEMP SILT FENCE, TP A	10000.000	0.49	4997.60
0320	165-0030	LF	MAINT OF TEMP SILT FENCE, TP C	100000.000	0.28	28667.00
0325	165-0071	LF	MAINT OF SEDIMENT BARRIER - BALED STRAW	20000.000	0.33	6702.00
0330	165-0101	EA	MAINT OF CONST EXIT	25.000	676.11	16902.97
0335	165-0105	EA	MAINT OF INLET SEDIMENT TRAP	150.000	38.69	5803.53
0340	167-1000	EA	WATER QUALITY MONITORING AND SAMPLING	18.000	180.39	3247.03
0345	167-1500	MO	WATER QUALITY INSPECTIONS	36.000	518.32	18659.82
0350	171-0010	LF	TEMPORARY SILT FENCE, TYPE A	20000.000	1.80	36028.40
0355	171-0030	LF	TEMPORARY SILT FENCE, TYPE C	200000.000	2.25	450138.00
0360	719-1000	EA	SILT FILTER BAG	18.000	353.15	6356.70
0365	441-0204	SY	PLAIN CONC DITCH PAVING, 4 IN	10000.000	30.06	300610.10
0370	647-1000	LS	TRAF SIGNAL INSTALLATION NO - INDUSTRIAL BLVD, SR 66, TWO ROUNDABOUTS	1.000	1000000.00	1000000.00
0375	653-6004	SY	THERM TRAF STRIPING, WHITE	5000.000	3.22	16140.60
0380	636-1020	SF	HWY SGN,TP1MAT,REFL SH TP3	1000.000	14.08	14087.65
0385	636-1033	SF	HWY SIGNS, TP1MAT,REFL SH TP 9	3200.000	14.79	47338.40
0390	636-2070	LF	GALV STEEL POSTS, TP 7	1100.000	6.93	7627.10
0395	636-2090	LF	GALV STEEL POSTS, TP 9	6500.000	6.48	42151.27
0400	654-1001	EA	RAISED PVMT MARKERS TP 1	200.000	4.00	801.99
0405	654-1003	EA	RAISED PVMT MARKERS TP 3	1200.000	3.16	3796.30

JOB ESTIMATE REPORT

0410	653-1501	LF	THERMO SOLID TRAF ST 5 IN, WHI	100000.000	0.35	35263.00
0415	653-1502	LF	THERMO SOLID TRAF ST, 5 IN YEL	100000.000	0.36	36970.00
0420	653-1804	LF	THERM SOLID TRAF STRIPE, 8",WH	10000.000	1.92	19266.10
0425	653-3501	GLF	THERMO SKIP TRAF ST, 5 IN, WHI	100000.000	0.23	23319.00
0430	653-3502	GLF	THERMO SKIP TRAF ST, 5 IN, YEL	16000.000	0.29	4683.04
0435	441-0600	CY	CONC HEADWALLS	360.000	500.00	180000.00
0440	600-0001	CY	FLOWABLE FILL	100.000	275.49	27549.73
0445	500-0100	SY	GROOVED CONCRETE	3000.000	4.25	12765.54
0450	500-1006	LS	SUPERSTR CONCRETE, CL AA, BR NO - 291-0007-0	1.000	631530.00	631530.00
0455	500-2100	LF	CONCRETE BARRIER	1400.000	43.83	61362.74
0460	500-3002	CY	CL AA CONCRETE	1077.220	582.48	627468.35
0465	507-9003	LF	PSC BEAMS,AASHTO TP III,BR NO-291-0007-0	1080.000	152.98	165223.24
0470	511-1000	LB	BAR REINF STEEL	62000.000	0.79	49454.92
0475	511-3000	LS	SUPERSTR REINF STEEL, BR NO - 291-0007-0	1.000	195430.00	195430.00
0480	520-2214	LF	PILING, PSC, 14 IN SQ	960.000	57.45	55158.77
0485	520-2216	LF	PILING, PSC, 16 IN SQ	2280.000	71.41	162816.62
0490	520-3214	EA	TEST PILE, PSC, 14 IN SQ	4.000	5995.07	23980.30
0495	520-3216	EA	TEST PILE, PSC, 16 IN SQ	8.000	5377.70	43021.60
0500	520-4214	EA	LOAD TEST, PSC, 14 IN SQ	4.000	0.72	2.90
0505	520-4216	EA	LOAD TEST, PSC, 16 IN SQ	4.000	0.63	2.54
0509	540-1101	LS	REM OF EX BR, STA NO - 408+00	1.000	100000.00	100000.00
0510	211-0300	CY	BR EXCAV, STREAM CROSSING	270.000	31.69	8558.92
0515	603-2024	SY	STN DUMPED RIP RAP, TP 1, 24"	3000.000	33.90	101725.80
0520	603-7000	SY	PLASTIC FILTER FABRIC	3000.000	3.28	9868.68
0525	634-1200	EA	RIGHT OF WAY MARKERS	450.000	102.79	46255.76
0530	441-0104	SY	CONC SIDEWALK, 4 IN	7000.000	31.18	218292.13
0535	617-0510	LS	PERMANENTLY ANCHORED WALL NO - 1	1.000	880000.00	880000.00
0540	617-0510	LS	PERMANENTLY ANCHORED WALL NO - 2	1.000	2232000.00	2232000.00
0545	617-0510	LS	PERMANENTLY ANCHORED WALL NO - 3	1.000	444000.00	444000.00
0550	617-0510	LS	PERMANENTLY ANCHORED WALL NO - 4	1.000	349200.00	349200.00
0555	617-0510	LS	PERMANENTLY ANCHORED WALL NO - 5	1.000	1646000.00	1646000.00
0560	617-0510	LS	PERMANENTLY ANCHORED WALL NO - 6	1.000	1800000.00	1800000.00
0565	617-0510	LS	PERMANENTLY ANCHORED WALL NO - 7	1.000	87500.00	87500.00
0570	617-0510	LS	PERMANENTLY ANCHORED WALL NO - 8	1.000	1783600.00	1783600.00

ITEM TOTAL	46738553.54
INFLATED ITEM TOTAL	46738553.54

TOTALS FOR JOB 122900_HNTB

ESTIMATED COST:	46738553.55
CONTINGENCY PERCENT (0.0):	0.00
ESTIMATED TOTAL:	46738553.55

CONCEPT REPORT

ATTACHMENT 3b

DETAILED COST ESTIMATES
COMPLETED LIQUID AC COST ADJUSTMENT FORMS

PROJ. NO.	APD00-0056-02(029)	CALL NO.	9/29/2009
P.I. NO.	122900		
DATE	11/23/2015		

INDEX (TYPE)	DATE	INDEX
REG. UNLEADED	Nov-15	$ 2.054
DIESEL		$ 2.430
LIQUID AC		$ 413.00

Link to Fuel and AC Index:
http://www.dot.ga.gov/doingbusiness/Materials/Pages/asphaltcementindex.aspx

LIQUID AC ADJUSTMENTS

PA=[((APM-APL)/APL)]xTMTxAPL

Asphalt

Price Adjustment (PA)			**2199225**	**$**	**2,199,225.00**
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	$ 660.80		
Monthly Asphalt Cement Price month project let (APL)			$ 413.00		
Total Monthly Tonnage of asphalt cement (TMT)			8875		

ASPHALT	Tons	%AC	AC ton
Leveling		5.0%	0
12.5 OGFC		5.0%	0
12.5 mm	30000	5.0%	1500
9.5 mm SP		5.0%	0
25 mm SP	90000	5.0%	4500
19 mm SP	57500	5.0%	2875
	177500		**8875**

BITUMINOUS TACK COAT

Price Adjustment (PA)			**$ 53,216.30**	**$**	**53,216.30**
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	$ 660.80		
Monthly Asphalt Cement Price month project let (APL)			$ 413.00		
Total Monthly Tonnage of asphalt cement (TMT)			214.7550461		

Bitum Tack Gals	gals/ton	tons
50000	232.8234	214.755046

BITUMINOUS TACK COAT (surface treatment)

Price Adjustment (PA)			**0**	**$**	**-**
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	$ 660.80		
Monthly Asphalt Cement Price month project let (APL)			$ 413.00		
Total Monthly Tonnage of asphalt cement (TMT)			0		

Bitum Tack	SY	Gals/SY	Gals	gals/ton	tons
Single Surf. Trmt.		0.20	0	232.8234	0
Double Surf.Trmt.		0.44	0	232.8234	0
Triple Surf. Trmt		0.71	0	232.8234	0
					0

TOTAL LIQUID AC ADJUSTMENT	**$**	**2,252,441.30**

CONCEPT REPORT

ATTACHMENT 3c

DETAILED COST ESTIMATES
RIGHT-OF-WAY

GEORGIA DEPARTMENT OF TRANSPORTATION
PRELIMINARY ROW COST ESTIMATE SUMMARY

Date: 1/8/2016 Project: APD00-0056-02(029)
Revised: County: Union/Towns
PI: 122900
Description: Widending and Relocation of SR 515
Project Termini: Blairsville to Young Harris at Timberline Drive
Existing ROW: Varies
Parcels: 168 Required ROW: Varies

Land and Improvements		$20,600,100.00
Proximity Damage	*$230,000.00*	
Consequential Damage	*$1,610,000.00*	
Cost to Cures	*$735,000.00*	
Trade Fixtures	*$275,000.00*	
Improvements	*$6,775,000.00*	
Valuation Services		$821,250.00
Legal Services		$1,088,400.00
Relocation		$1,636,000.00
Demolition		$960,000.00
Administrative		$1,478,500.00
TOTAL ESTIMATED COSTS		$26,584,250.00
TOTAL ESTIMATED COSTS (ROUNDED)		***$26,585,000.00***

Preparation Credits	Hours	Signature

Prepared By: [signature] CG#: 286999 01/08/2016 (DATE)
Approved By: [signature] CG#: 286999 01/08/2016 (DATE)

NOTE: No Market Appreciation is included in this Preliminary Cost Estimate

CONCEPT REPORT

ATTACHMENT 3d

DETAILED COST ESTIMATES
UTILITIES

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE APD00-0056-02(029), Union/Towns — OFFICE GAINESVILLE
PI No. 122900
SR 515 / SR 2 / US 76 From East Blairsville to Young Harris

FROM Neil Kantner, P.E., Distr. Utilities Eng. — DATE 4/10/2015

TO Albert Shelby, P.E., State Program Delivery Engineer
ATTEN Steve Adewale, Project Manager

SUBJECT UPDATED PRELIMINARY UTILITY COST ESTIMATE

As requested by your office we are furnishing you with an Updated Preliminary Utility Cost estimate for the subject project.

FACILITY OWNER		NON-REIMBURSABLE		REIMBURSBLE
City of Blairsville W/S	**	$2,840,292		$0
City of Young Harris W/S	**	$2,724,624		$0
Blue Ridge Mountain EMC		$654,568		$1,715,035
Windstream (Telecomm)		$1,359,490		$864,156
Windstream (CATV)		$788,856		$0
Balsamwest Fibernet, LLC		$665,428		$0
Towns County W/S Authority	**	$102,816		$0
TOTALS		**$9,136,074**		**$2,579,191**

Total Non-Reimbursable Cost **$9,136,074**

Total Reimbursabe Cost **$2,579,191**

** If the local gov't is granted utility aid, $5,667,732 will need to be added to the reimbursable cost.

If you have any questions, please contact Neil Kantner at 770-532-5510.

NAK

C: Mike Bolden, State Utilities Engineer
Rob Mabry, Area Engineer
File

CONCEPT REPORT

ATTACHMENT 3e

DETAILED COST ESTIMATES
ENVIRONMENTAL MITIGATION (EPD, ETC.)

Wetland and Stream Mitigation Costs

Total Wetland Impacts:	0.563	Acres		
Unit cost of wetland impacts:	$80,000	/Acre		
			Total Wetland Mitigation Cost:	$45,040
Total Stream Impacts:	3423	linear feet		
Unit cost of stream impacts:	$800	/linear foot		
			Total Stream Mitigation Cost:	$2,738,400
			Total Mitigation Cost =	***$2,783,440***

CONCEPT REPORT

ATTACHMENT 4

CRASH SUMMARIES

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

Office of Program Delivery

Need and Purpose

Union and Towns County
P. I. No. 122900

Widening and Reconstruction of SR 515/US 76 from CS 2898/Young Harris Street in Blairsville to CR 153/Timberline Drive north of Young Harris

Planning Background

The SR 515/US 76 corridor serves as a north-south roadway traveling from the Cherokee/Pickens County Line to the City of Blue Ridge and as an east-west roadway traveling from the City of Blue Ridge to the North Carolina State Line in Towns County. SR 515/US 76 originates at the Cherokee/Pickens County Line near the terminus of I-575/SR 5 and travels north and east through the cities of East Ellijay, Blue Ridge, Blairsville, and Young Harris.

SR 515 is also part of Corridor A of the Appalachian Development Highway System (ADHS). The ADHS was authorized by Congress in 1965 and was designed to generate economic development in the previously isolated Appalachian region. The overall goal of the ADHS is to provide access to the region in order to stimulate economic growth.

In addition, SR 515 is a route designated as part of the Governor's Road Improvement Program (GRIP). Originally adopted in 1989 by the Georgia General Assembly, GRIP is a system of 19 proposed economic development highways in Georgia. The purpose of the GRIP system is to provide the transportation infrastructure necessary for economic growth by providing connectivity in rural areas of Georgia, opportunities for growth, effective and efficient transportation, and safer travel in rural areas.

The section of SR 515 from CS 2898/Young Harris Street in Blairsville to CR/153 Timberline Drive north of Young Harris is one of two remaining segments of the ADHS Corridor A and the GRIP ADH that is two lanes. From the beginning of SR 515 at the northern terminus of I-575 in Cherokee County to Blairsville, the road is four lanes for approximately 66 miles, with either a center turn lane or a depressed grassed median. The approximately 8.3 mile of SR 515 segment between Blairsville in Union County and Young Harris in Towns County is two lanes with intermittent passing lanes or a center turn lane provided. From CR 153/Timberline Drive in Towns County to just west of Lake Chatuge at the SR 515/US 76/SR 17 intersection along SR 515 the corridor is four lanes with either a center turn lane or paved 6-foot striped median provided for approximately 3.0 miles. The approximately 1.1 mile segment of SR 515 just west of Lake Chatuge to the North Carolina/Georgia state line is two lanes.

Land Use

SR 515/US 76 is a heavily used North Georgia transportation corridor with the towns of Blairsville, Ellijay, Young Harris, Hiawassee, and Jasper in close proximity. According to the Union County-Blairsville, GA Comprehensive Plan (2004-2025) and the Towns County Joint

Comprehensive Plan (2010), the land use along the proposed project corridor includes a mixture of agricultural/forestry, rural residential, commercial, public/institutional, and park/recreation/conservation areas. According to the Georgia Mountains Regional Commission, tourism is a significant contributor to the local economies and accounts for $37 million of the economy in Union County. It is anticipated that this region will continue to experience growth, based on North Georgia mountain tourism, its residential growth, and the continuing retirement boom in this area of the region.

School Bus Routes

Though SR 515/US 76 does not provide direct access to any elementary, middle or high schools, bus routes from both Union County Schools (K-12) and Towns County Schools (K-12) utilize the corridor. According to the Union County Schools Director of Transportation, there are two school bus routes carrying approximately 112 students, which utilize SR 515/US 76 in Union County. These busses enter the corridor at the Glen Gooch Bypass and travel east toward the Union County/Towns County line. One bus route utilizes the corridor to access remote areas of the county, while the other has several stops located directly on SR 515/US 76 or on adjacent side roads, which are accessed via SR 515/US 76. According to the Towns County Schools Transportation Director, there are four bus routes providing transportation for approximately 200 students which utilize SR 515/US 76 in Towns County. These routes begin at the schools located in the city of Hiawassee and enter the proposed project corridor from various locations. The routes include approximately 12 stops located 0.25 to 0.50-mile apart along SR 515/US 76, in addition to several other stops located along adjacent roads. In total, six bus routes carrying approximately 312 students travel SR 515/US 76 in Union and Towns Counties along the corridor.

Bike and Pedestrian Facilities

The Georgia Mountain Regional Commission has listed three on-road bicycle projects for Union County and one of them is along this corridor; SR 2 (US 76)/ SR 515/CR 341(Blue Ridge Hwy). This covers 15.81 miles from the Towns/Union County Line in east Union County to the Fannin/Union County Line. Within the rural typical section limits along SR 515/US 76 in Union County, the proposed bike project will provide a rural shoulder that would accommodate bicyclists. The other two proposed bike projects would follow SR 11/US 129 and SR 348; neither of these projects is within the proposed SR 515 project area.

Traffic Data, Capacity, and Level of Service

Traffic volumes are anticipated to increase substantially over the next 25 years and increased capacity is a primary purpose for the proposed project. To evaluate the severity of traffic congestion, roadways are rated for operational effectiveness using a level-of-service (LOS). LOS is a standard means of classifying traffic conditions associated with various traffic volume levels and traffic flow conditions.

Table 1, below, shows the Average Daily Traffic (ADT) and indicates the LOS in the No-Build Condition for the Existing Year (2010), Build Year (2014), and Design Year (2034) at several intersections along the SR 515 corridor between Blairsville and Young Harris. These intersections were chosen to represent the variations in traffic volumes along the corridor.

Table 1: SR 515 ADT Volumes and LOS

Location	Young Harris Street	Windy Hill Road	Union/Towns County Line	Murphy Street	Timberline Drive
AADT (vehicle per day)	16,900 (2010) 19,100 (2014) 34,500 (2034)	12,800 (2010) 14,400 (2014) 26,000 (2034)	11,600 (2010) 13,100 (2014) 23,800 (2034)	12,800 (2010) 14,400 (2014) 26,000 (2034)	12,100 (2010) 13,600 (2014) 24,600 (2034)
LOS (No-Build Condition)	C (2010) D (2014) E (2034)	C (2010) D (2014) E (2034)	C (2010) D (2014) E (2034)	E (2010) E (2014) E (2034)	E (2010) E (2014) E (2034)

For the purposes of designing the proposed improvements, the following volumes will be used: Existing (2010), 16,900 ADT; Build Year (2014), 19,100 ADT; and Design Year (2034), 34,500 ADT. Existing truck traffic is estimated to account for 12***%*** of total traffic volume for this proposed project along the SR 515/US 76 corridor in 2010 and is expected to remain at 12% in 2034 (Design Year). Under no build conditions the overall LOS along the corridor would be D in the Build Year and E in the Design Year.

The existing LOS E at the Murphy Street and Timberline Drive intersections in Young Harris is in contrast to the LOS C found along other sections of the corridor not within Young Harris. The LOS E is as a result of the increased number of driveways and side streets in close proximity to each other in Young Harris. Traffic speeds are reduced associated with drivers executing turns at these driveways and onto side streets. In conjunction with the increased number of driveways and side streets, there are no passing opportunities inside the city limits of Young Harris so vehicles are unable to pass slow moving or turning traffic.

Crash Data and Analysis

Crash statistics for the most recent three year period show a need to improve safety on the corridor. In 2007 and 2008, crash and injury rates exceeded statewide averages for rural principal arterials, and the fatality rate exceeded statewide averages in 2008. Crash, injury, and fatality rates for the corridor are found in a three-year history of crashes along the proposed project corridor in Table 2, Crash History. For comparison, the statewide crash, injury, and fatality rates for the functional classification, Rural Principal Arterial, are also provided in the table.

Table 2: Crash History

Year	Total Crashes/Crashes Rate* Statewide Avg. Crash Rate	Total Injuries/Injury Rate* Statewide Avg. Injury Rate	Total Fatalities/Fatality Rate* Statewide Avg. Fatality Rate
2006	32/115	13/47	0/0.00
	137	78	1.91
2007	49/165**	31/105**	0/0.00
	114	63	1.99
2008	44/148**	22/74**	1/3.37**
	116	64	1.47

* All crashes, injury, and fatality rates are per 100 million vehicle miles.

** Exceeds statewide average for Rural Principal Arterial that year.

Not only do crash statistics evidence a need to reduce the frequency and severity of crashes, this need has the potential to magnify in the future as traffic volumes grow. With traffic expected to increase by 80 percent in the 20 year interval between the Build Year (2014) and the Design

Year (2034), there is an increased chance of congestion-related crashes, such as those caused by conflicting turning movements. The frequency and severity of crashes may also continue as a result of curvy roadway conditions and inconsistent lane configurations along the corridor. The condition that poses the greatest safety concern is the lack of an existing median and right and left turn lanes at side road intersections. The proposed project would change the typical section to include a depressed grass median or a center turn lane in order to address existing deficiencies. The addition of a median will also allow for left turn lanes to be included at median opening access points along the corridor.

A breakdown of the crash data, presented in Table 3, Crash Categories, reveals that of the total crashes along the corridor the three most common crash types in 2006, 2007, and 2008 were the "angle," "rear end collision," and "not a collision with a vehicle."

Table 3: Crash Categories

Type of Crash	2006	2007	2008	Total	Percent
Angle	15	16	8	39	31.2%
Rear End	5	14	15	34	27.2%
Not a Collision with a Vehicle	4	10	15	29	23.2%
Side Swipe	7	9	5	21	16.8%
Head On	1	0	1	2	1.6%
Sub-total	32	49	44	125	100%

Over half of all the documented angle crashes occurred between one vehicle travelling straight while the second vehicle traveling in the opposite direction was executing a left turn. The addition of a median between opposing travel lanes and an increased right-of-way width would increase sight distance for drivers and enhance their reaction time. The use of median openings with designated left and right turn lanes at side street intersections would enable a vehicle to slow down, stop, make a turn, and have more time to perform these actions.

Of all documented rear-end crashes, over 60 percent occurred between one vehicle traveling straight while the second vehicle was either stopped or was in the process of executing a left or right turn. Based on the crash analysis, these crashes are occurring along the entire corridor length and not just at intersections. Providing additional continuous travel lanes along the corridor in addition to the turn lanes at intersecting side streets, would reduce the potential for rear-end crashes throughout the project limits.

The crash category "not collision with a motor vehicle" includes crashes with animals and objects within the clear zone, such as guardrails and signs. The majority of these crashes involved animals, while about one third of them occurred when a vehicle was attempting to negotiate a curve and ran off the roadway. As part of the proposed project, the horizontal and vertical curves along the roadway would be reviewed to identify deficiencies and improvements to these curves would be proposed to reduce run-off crashes. The proposed increased right-of-way width would provide increased sight distance and wider shoulder and clear zone widths, which would reduce the potential for crashes with animals in the roadway or objects within the clear zone, such as guardrails or signs. This would be achieved by moving necessary roadside objects further away from the roadway edge and removing trees and any unnecessary objects from the clear zone area.

Of the total crashes that occurred along the SR 515/US 76 project corridor between 2006 and 2008, just over 40 percent of the total number of crashes occurred within the first one mile section of the project, between Young Harris Street and a point just east of Windy Hill Road. Within the first one mile of the project, the typical section transitions from a four lane roadway with a center turn lane and urban curb and gutter to a two lane roadway with a center turn lane and rural shoulders. In addition, the speed limit changes from 35 mph to 55 mph heading north out of Blairsville. The high percentage of crashes occurring within a short section of roadway appear to be attributed to the curvy roadway geometry, significant reduction in speed limit as you travel south, and the change in number of travel lanes. The remainder of the crashes are spaced relatively even along the corridor between Windy Hill Road and Timberline Drive in Young Harris. The distance between crash sites ranged from a tenth of a mile to just over a half-mile. These crashes illustrate a corridor wide problem, and not an issue confined to one small portion of the proposed project.

Project Description

The proposed project would provide improvements to approximately 8.3 miles of SR 515/US 76 from the intersection at CS 2898/Young Harris within the northern city limits of Blairsville to CR 153/Timberline Drive within the northern city limits of Young Harris (see Figure 1a and 1b: Project Location and Vicinity Map). For the area of the proposed project, SR 515/US 76 has a functional classification of a Rural Principal Arterial with a posted speed limit between 35 and 55 miles per hour (mph). The existing right-of-way varies from 80 to 130 feet. The existing typical section varies along the project corridor as follows:

- **5 lane section (2 eastbound lanes, 2 westbound lanes, and a center left turn lane)**: from Young Harris Street to Industrial Boulevard/Glenn Gooch Bypass in Blairsville.

- **3 lane section (1 eastbound lane, 1 westbound lane, and a center two-way left turn lane)**: from Industrial Boulevard/Glenn Gooch Bypass to Memory Gardens Drive in Blairsville; and from Trackrock Gap Road to Timberline Drive in Young Harris.

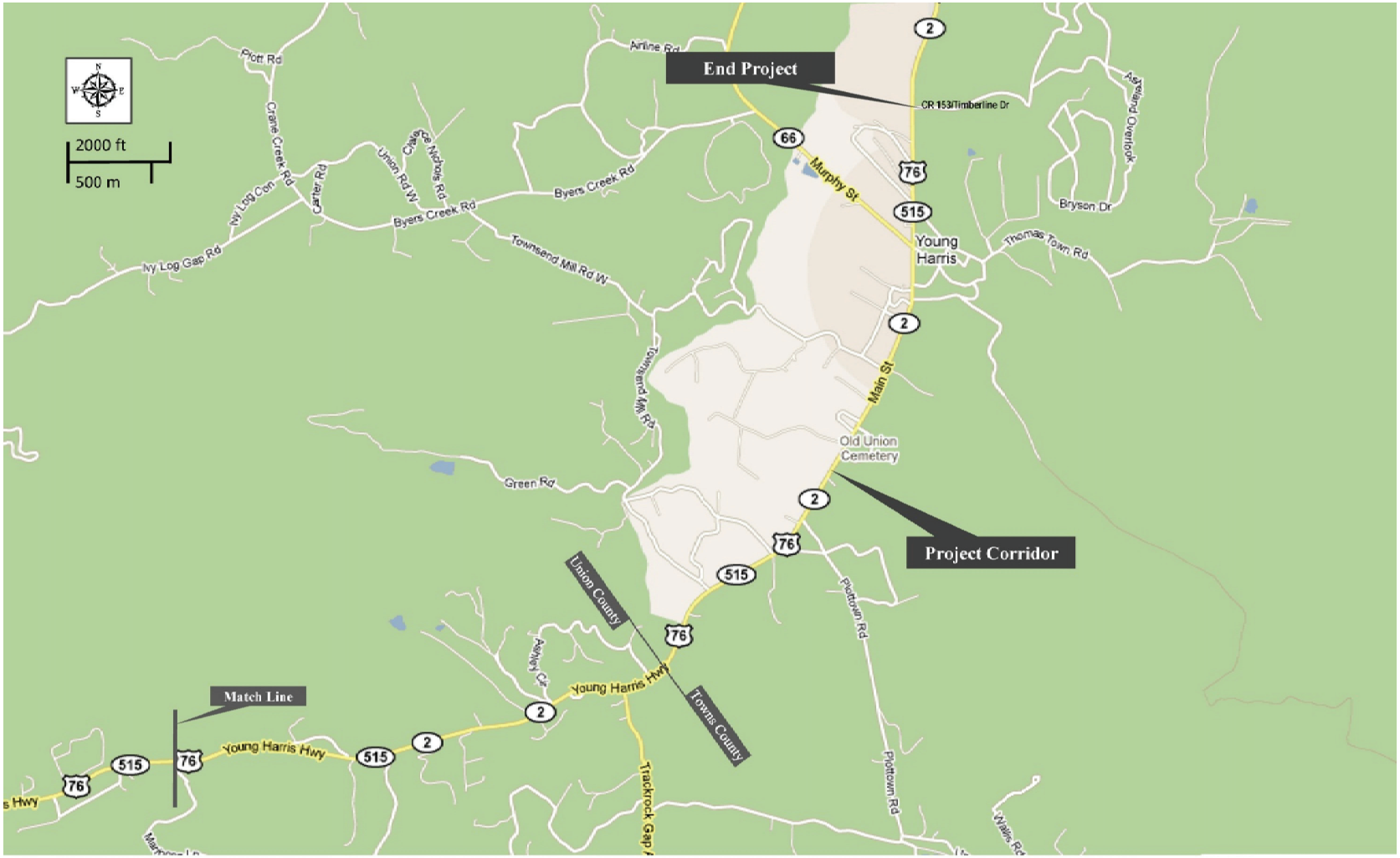
- **3 lane section (2 eastbound lanes and 1 westbound lane)**: from Memory Gardens Drive to Earl Shelton Road.

- **3 lane section (1 eastbound lane and 2 westbound lanes)**: from Earl Shelton Road to Trackrock Gap Road.

There is one existing major structure on the proposed project corridor, which is a bridge over Brasstown Creek (Structure ID 291-0007-0) approximately 5.9 miles northeast of Blairsville in Union County. The bridge was originally constructed in 1958, but it was reconstructed in 1988. Sufficiency rating is a scale used by the Georgia Department of Transportation (GDOT) to determine the structural and geometric condition of the bridge. This rating is determined by a federal definition adopted from the Association of American State Highway and Transportation Officials (AASHTO) standards and is based on structural adequacy and safety, serviceability, functional obsolescence, and necessity for public use. Ranging on a point system from 1 to 100, any bridge with ratings of 50 points or lower are candidates for replacement in order to provide a safe, structurally sufficient bridge for motorists and pedestrians. A rating of 1 is given to

Source: *Google Maps*

Figure 1a: **Project Location and Vicinity Map**	**US 76/SR 2/SR 515** **APD-00056-002(29), PI# 122900**: from CS 2898/Young Harris Street in Blairsville to CR 153/Timberline Drive just north of Young Harris Union and Towns Counties, Georgia	



Source: *Google Maps*

Figure 1b: **Project Location and Vicinity Map**	**US 76/SR 2/SR 515** **APD-00056-002(29), PI# 122900**: from CS 2898/Young Harris Street in Blairsville to CR 153/Timberline Drive just north of Young Harris Union and Towns Counties, Georgia	

structures in serious need of replacement, and a rating of 100 is given to bridges without any deficiencies. The bridge over Brasstown Creek has a sufficiency rating of 77.38.

Projects in the Vicinity of the Proposed Project

A number of projects are proposed in the project vicinity. Table 4: Adjoining Projects, provides the project limits, description, schedule and potential for conflict with the proposed SR 515/US 76 project from CS 2898/Young Harris in Blairsville to CR 153/Timberline Drive in Young Harris.

Table 4: Adjoining Projects

Project No.	Facility	Limits	Description	Schedule	Conflict
S011965	Young Harris Street and others	Blairsville, Hiawassee, and various county roads, Union County	Resurfacing and Maintenance	Under CST	None
S012877	Young Harris Street and others	10.6 miles Blairsville, Cleveland, Dahlonega, Helen and on various county roads, Union Co.	Resurfacing and Maintenance	Under CST	None
0009729	N/A	Union County	Pavement Markings/ Off-system safety improvements at 22 County Road Locations	Construction: LUMP	None
BR000-0000-00(304); PI 0000304	SR 66	SR 66 at Brasstown Creek, 0.5 miles northwest of Young Harris, Towns County	Bridge Replacement	Eng: 2001 ROW: 2014 CST: 2016 CST: 2016	Possible

No impacts or conflicts are anticipated between the proposed project along SR 515 and the projects in Union County. There are possible impacts to the SR 66 at Brasstown Creek Bridge Replacement in Towns County depending on the length of roadway approach construction that is required by the bridge replacement. PI # 0000304 is currently in the Preliminary Engineering Phase. Coordination will be completed with this project to minimize conflicts between the two projects.

Logical Termini

This proposed SR 515/US 76 project would tie into an existing four-lane typical section with a center turn lane at CS 2898/Young Harris Street within the northern city limits of Blairsville, and would tie into an existing four-lane typical section with a narrow paved and striped median at CR 153/Timberline Drive within the northern city limits of Young Harris in Towns County.

The southern terminus provides logical termini due to its connection with the existing four-lane typical section in Blairsville. The northern terminus provides logical termini due to its connection with the existing four-lane typical section at CR 153/Timberline Drive within the northern city limits of Young Harris in Towns County.

Need and Purpose

The need for the improvements along SR 515/US 76 is to address current and future capacity deficiencies as well as reduce the crash and injury rates along the corridor.

CONCEPT REPORT

ATTACHMENT 5

TRAFFIC DIAGRAMS

SHEET 1 OF 4

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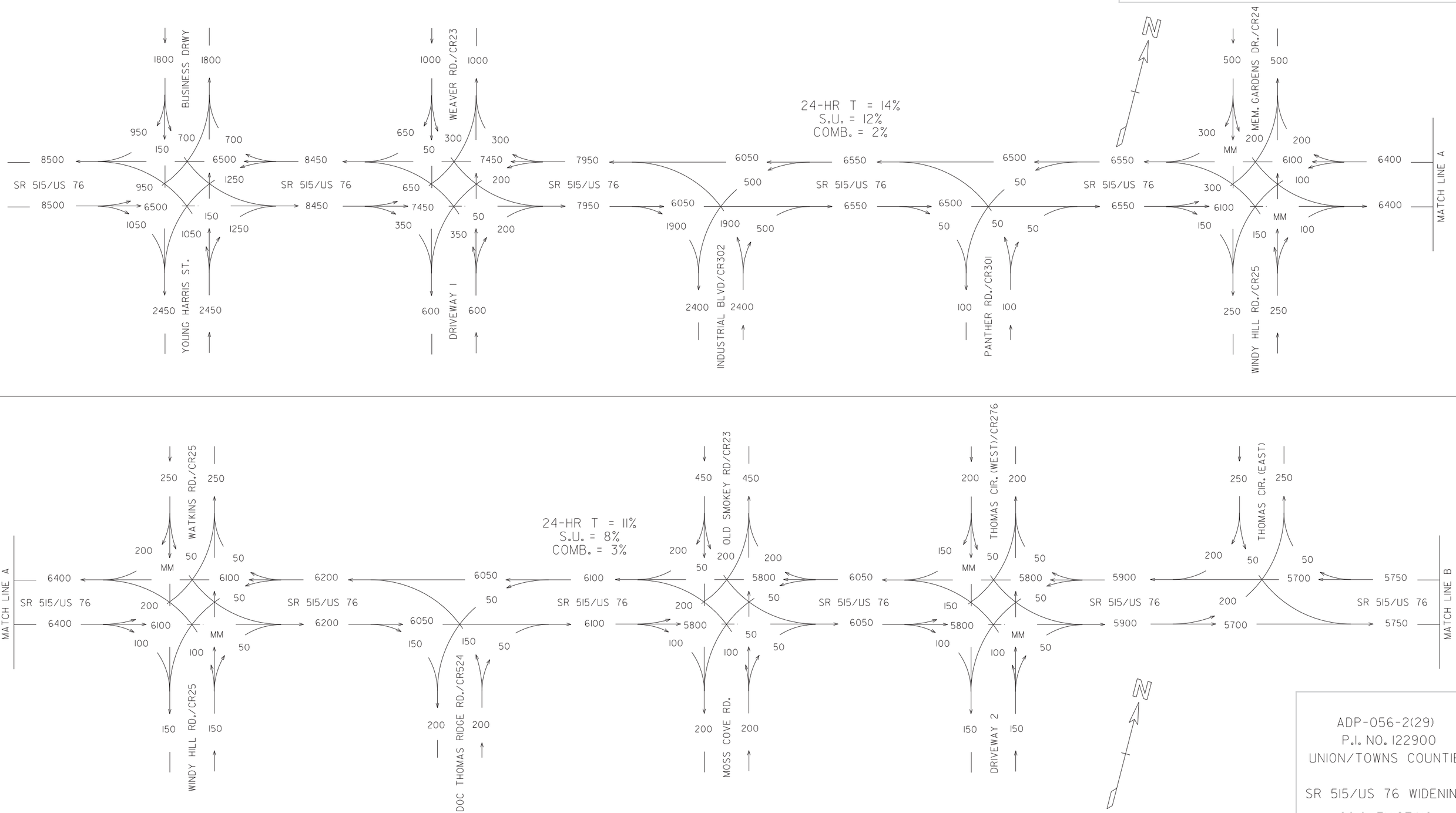
3715 NORTHSIDE PARKWAY, NW
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327



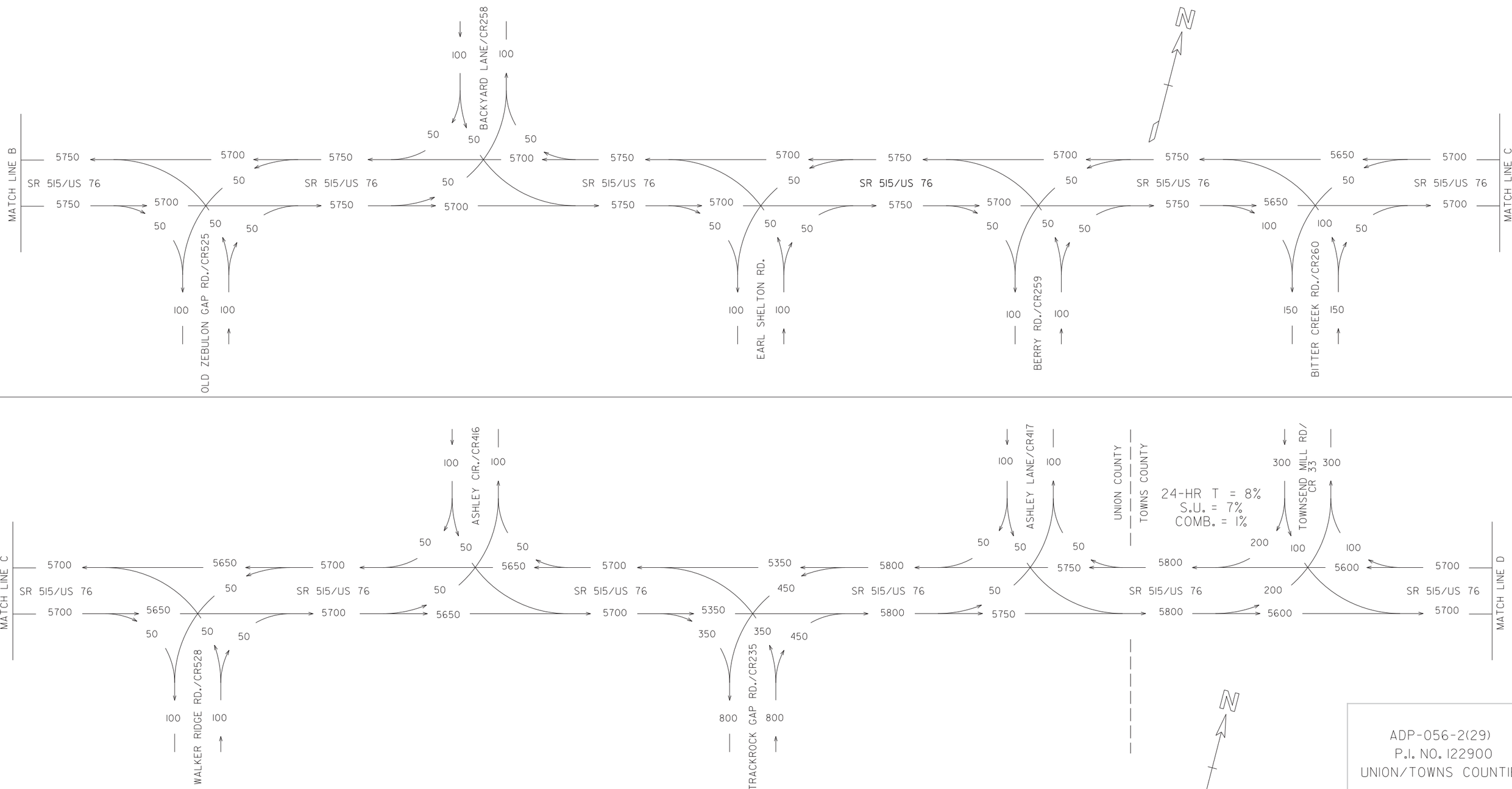
ADP-056-2(29)
P.I. NO. 122900
UNION/TOWNS COUNTIES

SR 515/US 76 WIDENING

2010 EXISTING
ADT = 000

1/ 2012

HNTB
3715 NORTHSIDE PARKWAY, NW
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327



ADP-056-2(29)
P.I. NO. 122900
UNION/TOWNS COUNTIES

SR 515/US 76 WIDENING

2010 EXISTING
ADT = 000

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SHEET 3 OF 4

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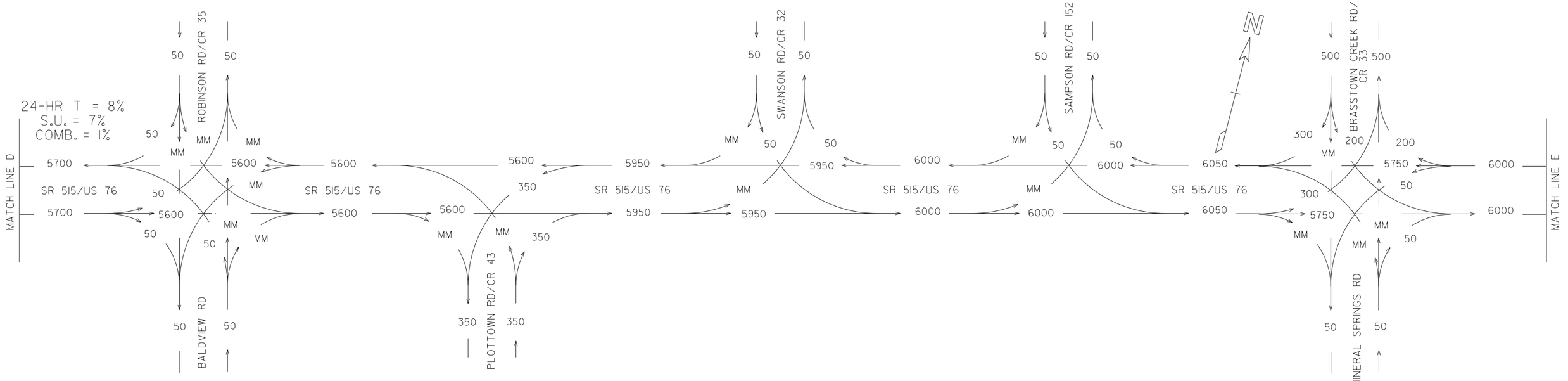
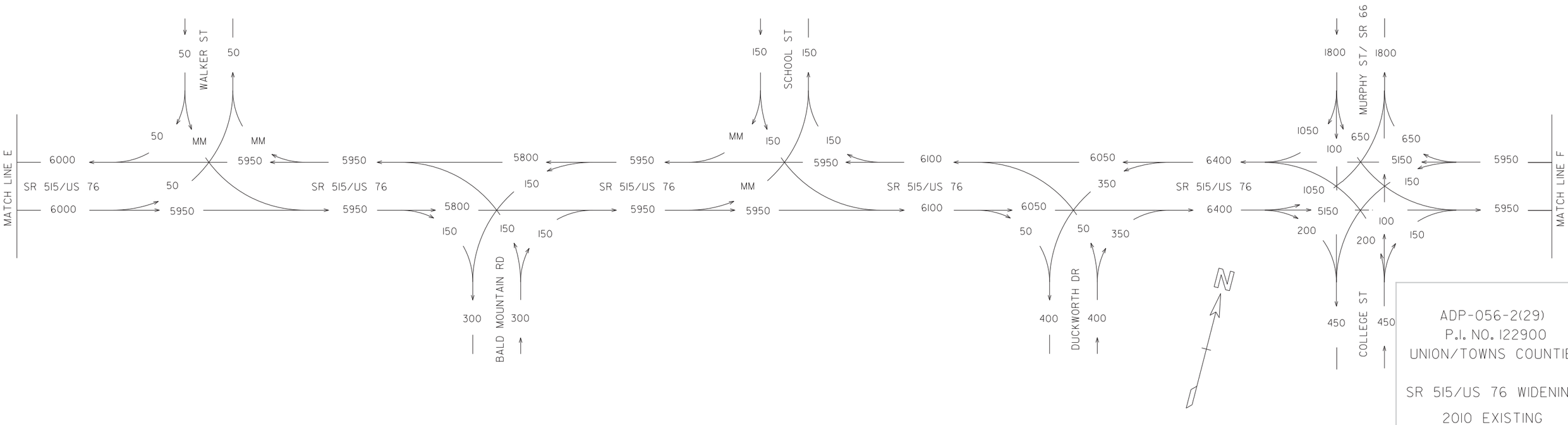
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327





ADP-056-2(29)
P.I. NO. 122900
UNION/TOWNS COUNTIES

SR 515/US 76 WIDENING

2010 EXISTING
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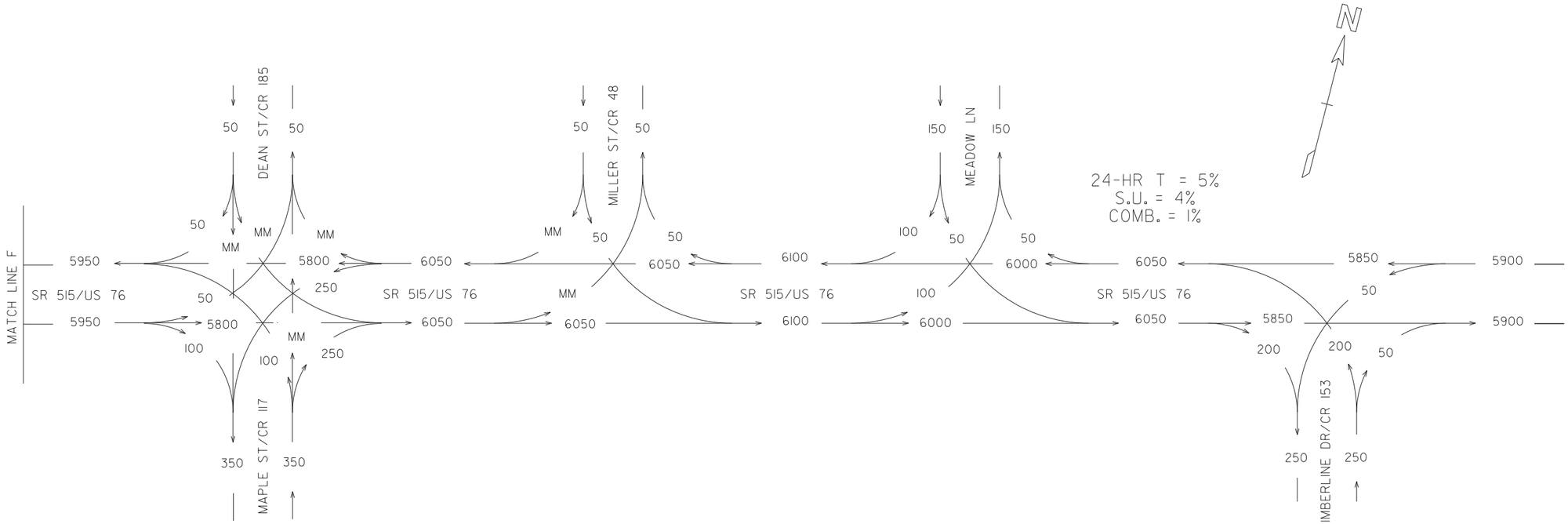
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327



ADP-056-2(29)
P.I. NO. 122900
UNION/TOWNS COUNTIES

SR 515/US 76 WIDENING

2010 EXISTING
ADT = 000

1/ 2012

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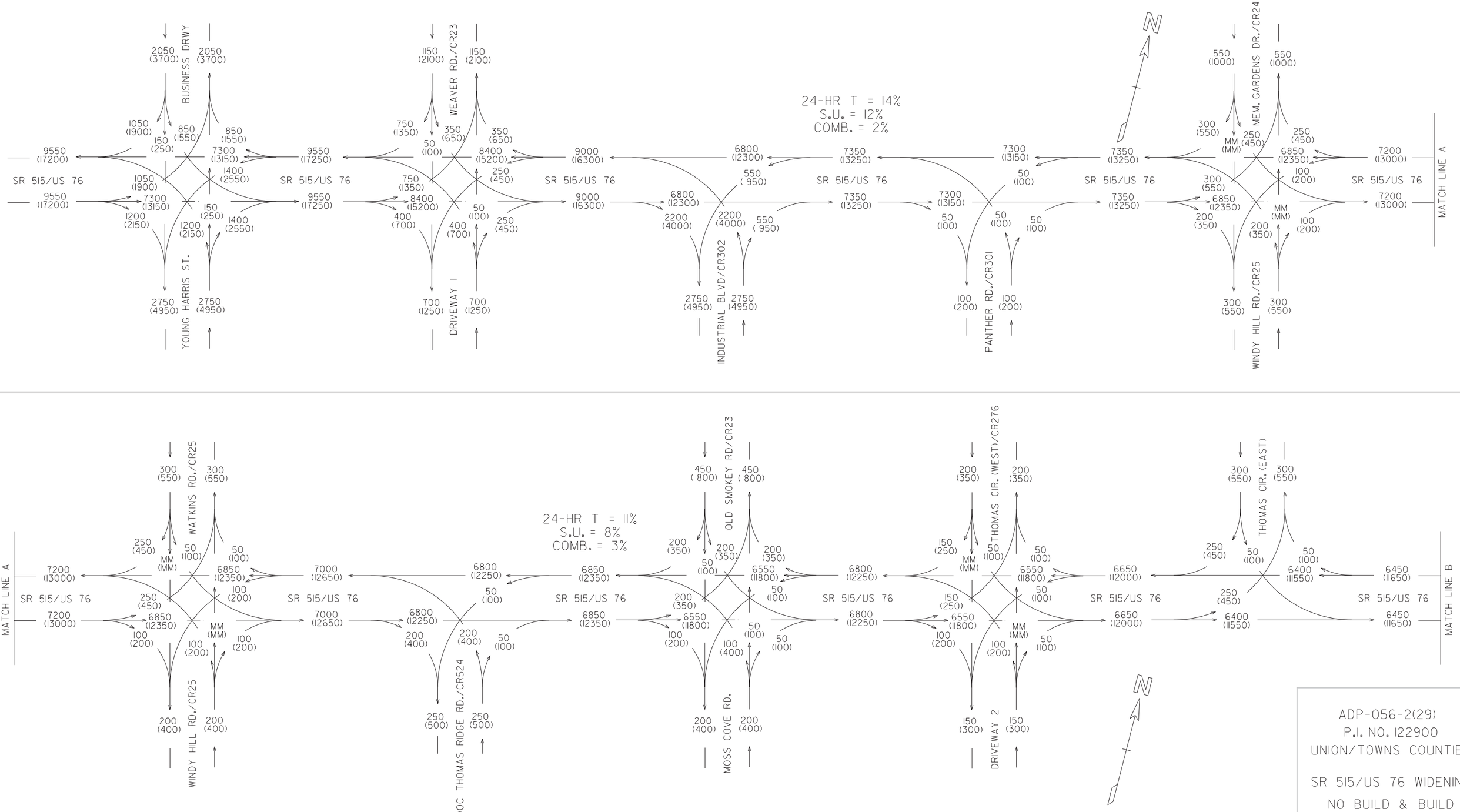
ATLANTA, GEORGIA 30327



ADP-056-2(29)
P.I. NO. 122900
UNION/TOWNS COUNTIES

SR 515/US 76 WIDENING
NO BUILD & BUILD
2019 ADT = 000
2039 ADT = (000)

1/ 2012

HNTB
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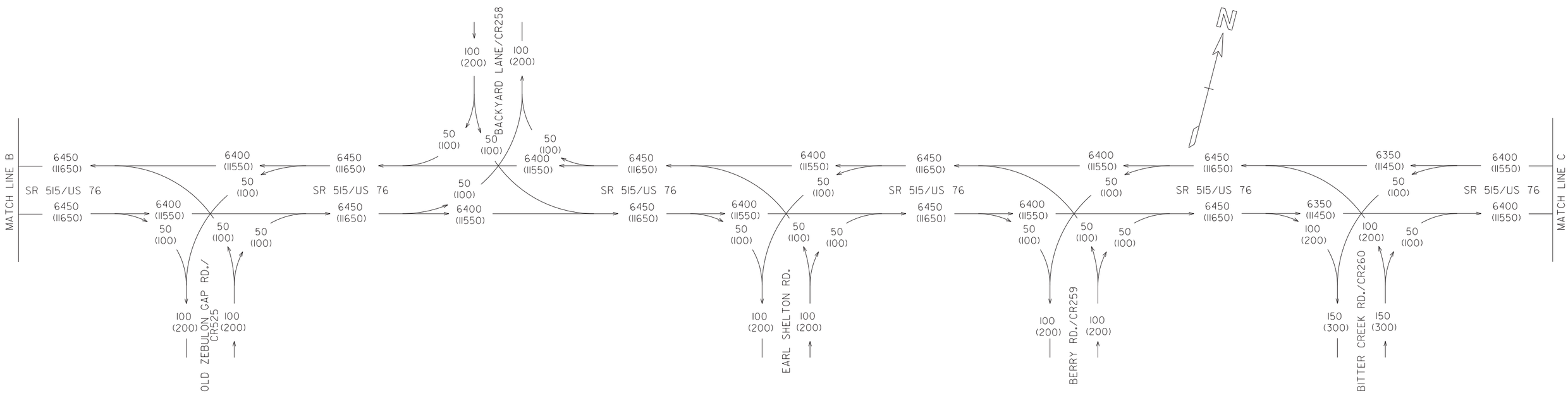
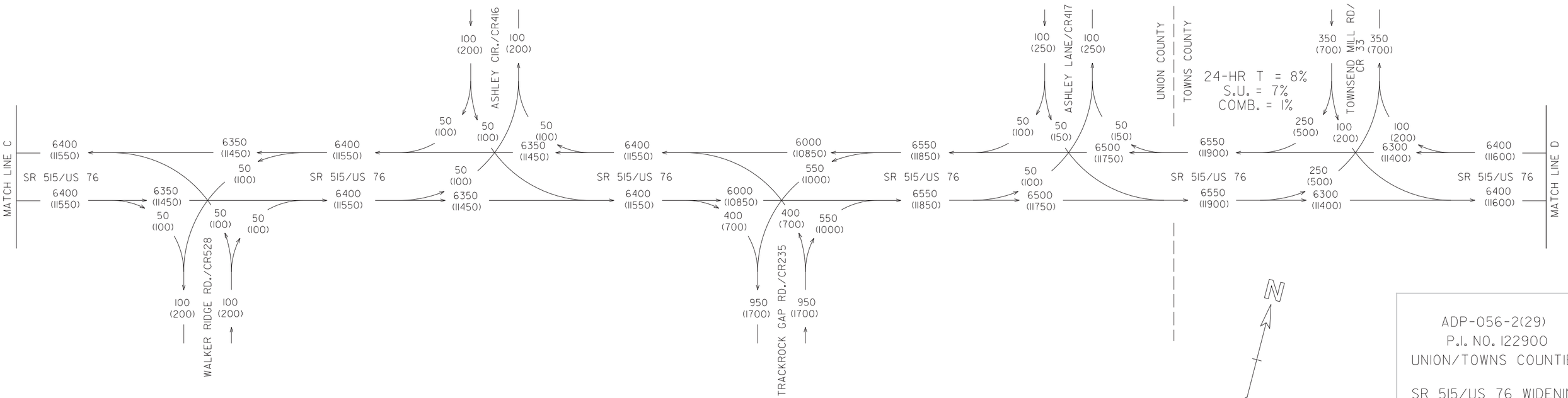
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327





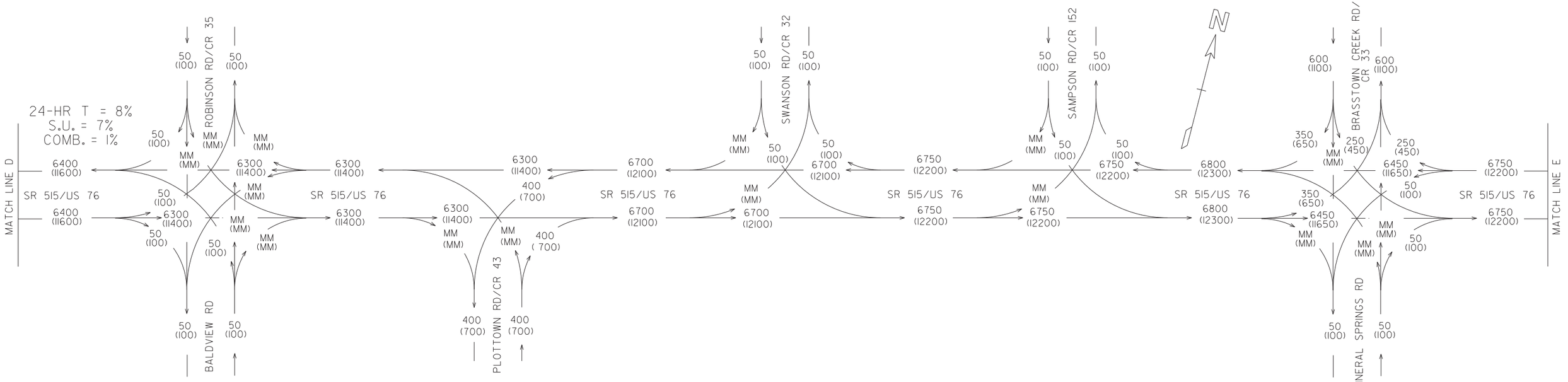
ADP-056-2(29)
P.I. NO. I22900
UNION/TOWNS COUNTIES

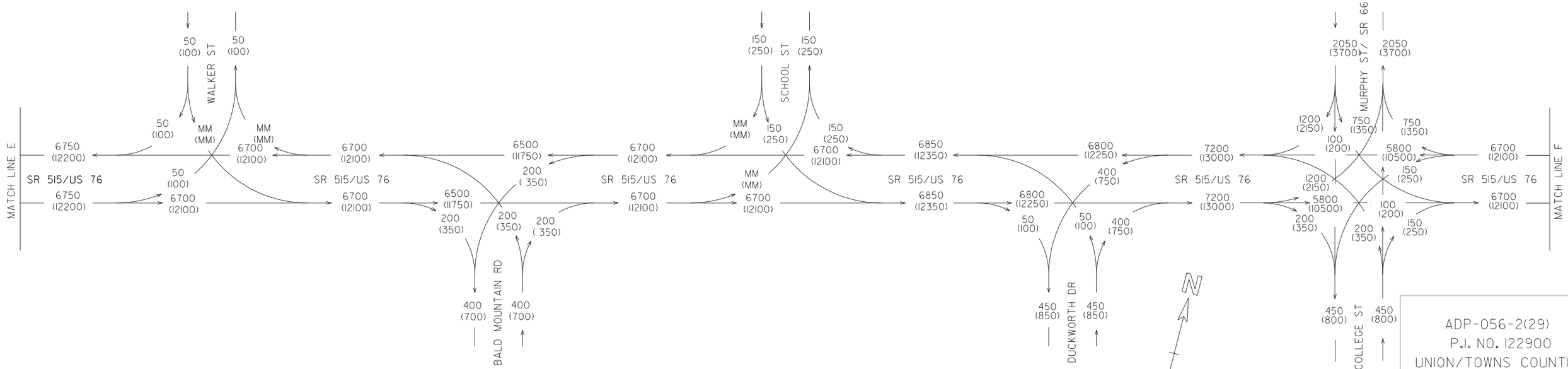
SR 515/US 76 WIDENING

NO BUILD & BUILD
2019 ADT = 000
2039 ADT = (000)

1/ 2012

HNTB
3715 NORTHSIDE PARKWAY, NW
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327





ADP-056-2(29)
P.I. NO. I22900
UNION/TOWNS COUNTIES

SR 515/US 76 WIDENING
NO BUILD & BUILD
2019 ADT = 000
2039 ADT = (000)

1/ 2012

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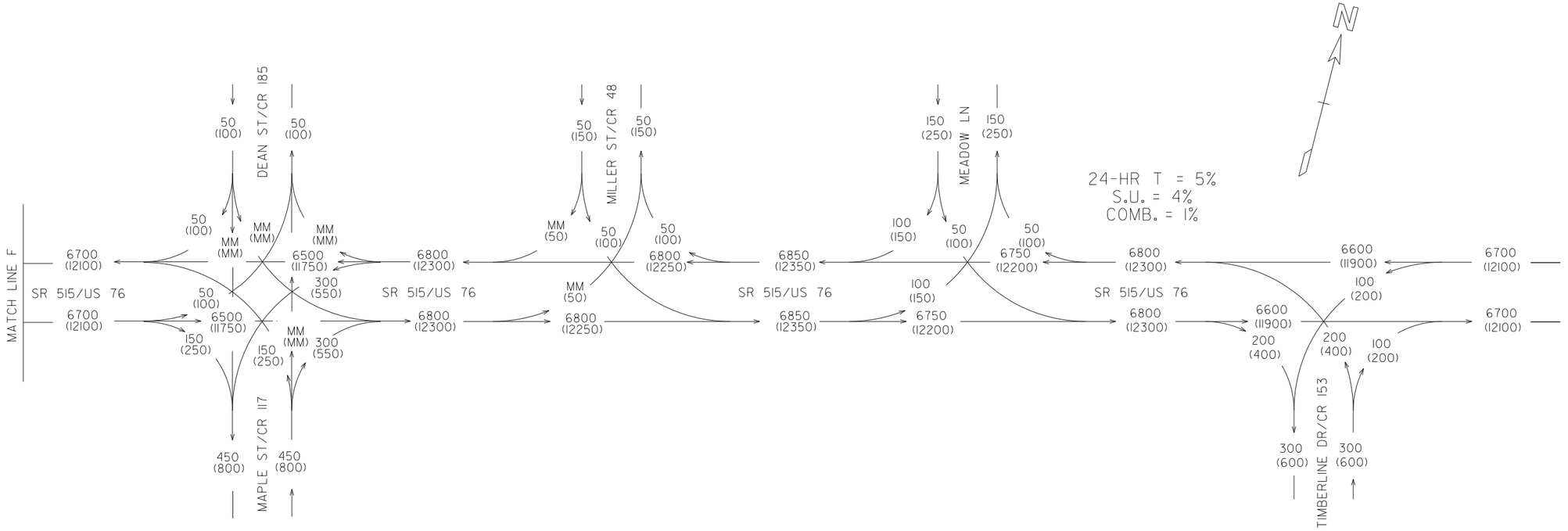
ATLANTA, GEORGIA 30327



ADP-056-2(29)
P.I. NO. 122900
UNION/TOWNS COUNTIES

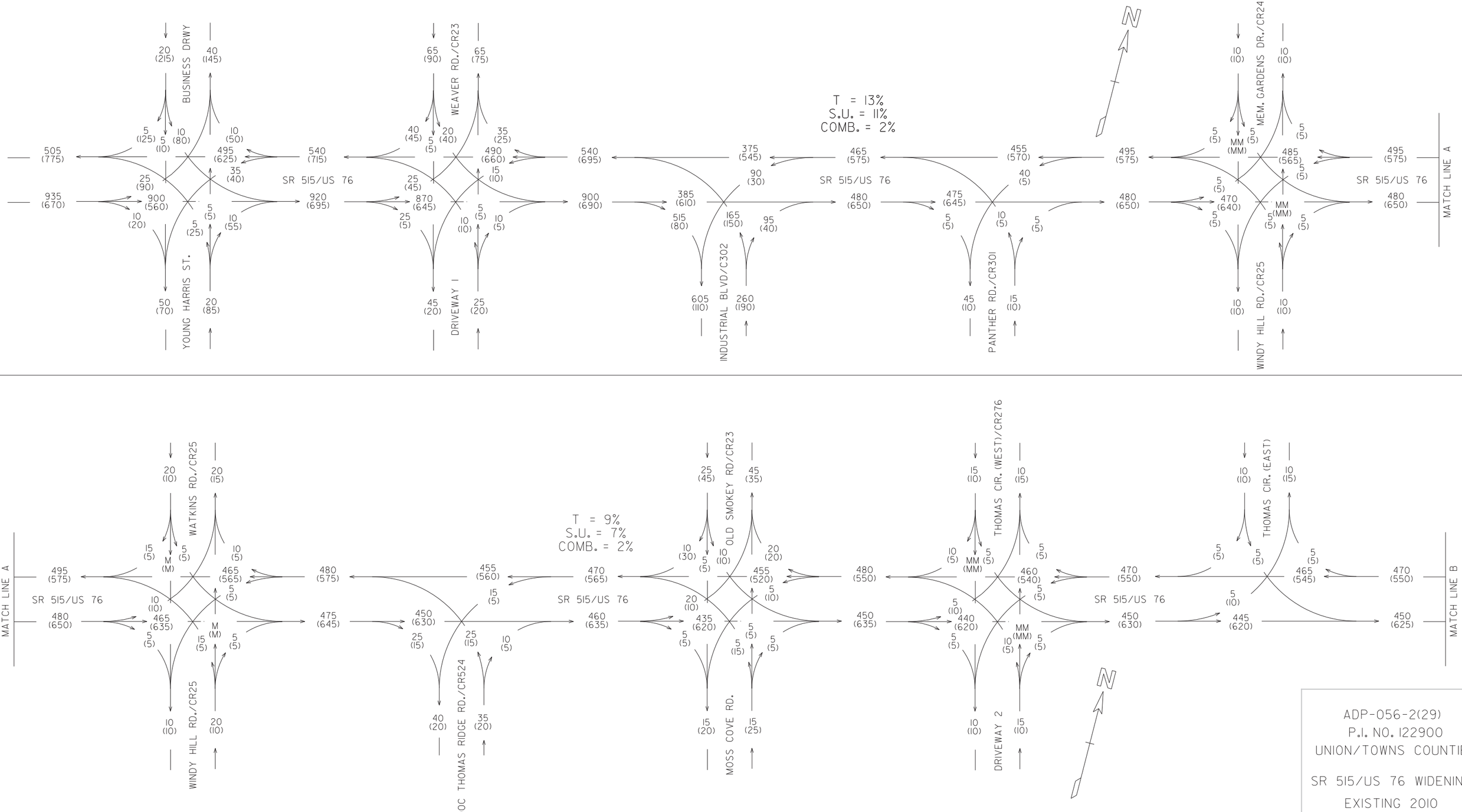
SR 515/US 76 WIDENING

NO BUILD & BUILD
2019 ADT = 000
2039 ADT = (000)

1/ 2012

SHEET 1 OF 4

HNTB
3715 NORTHSIDE PARKWAY, NW
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327

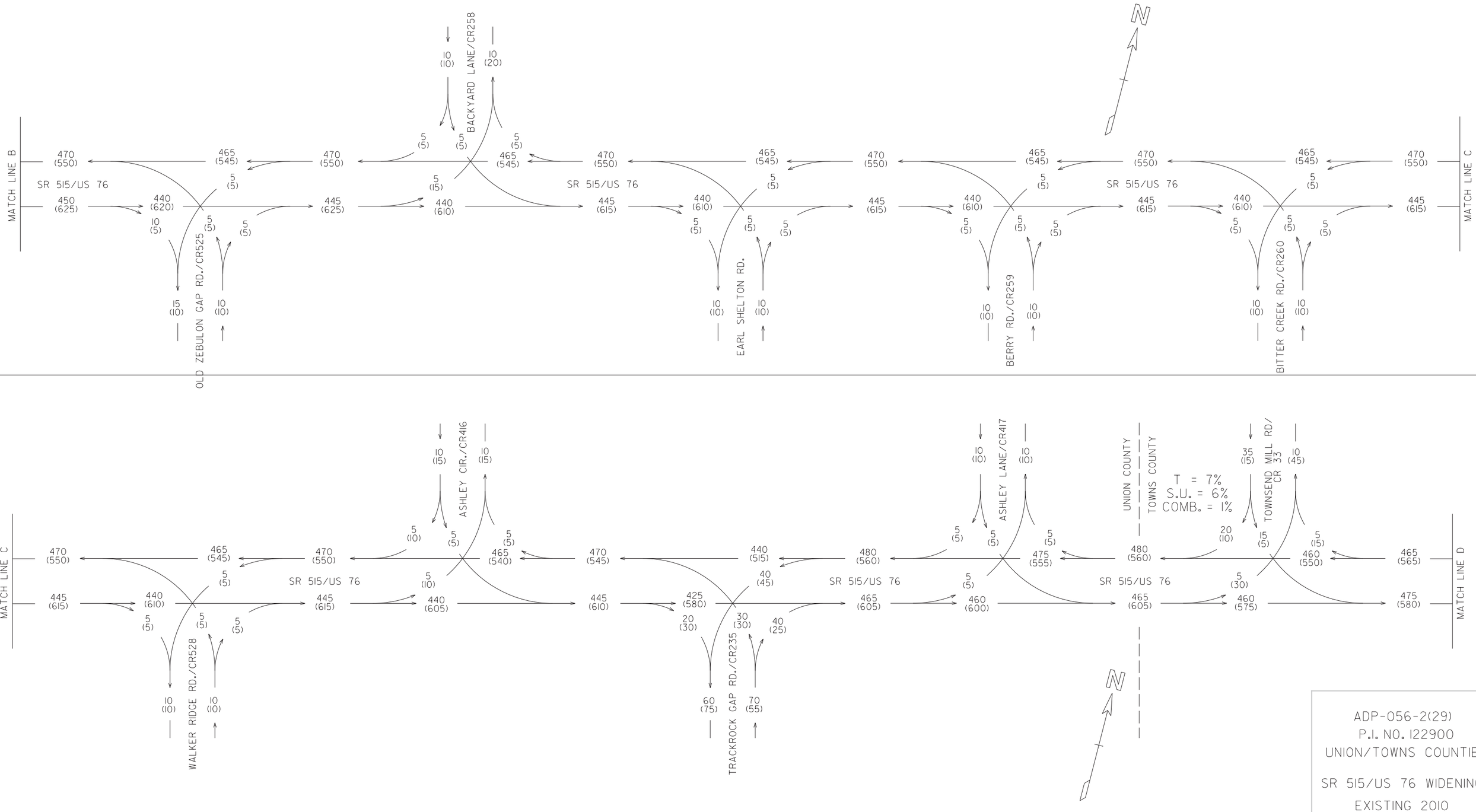


ADP-056-2(29)
P.I. NO. 122900
UNION/TOWNS COUNTIES

SR 515/US 76 WIDENING
EXISTING 2010
AM DHV = 000
PM DHV = (000)

1/ 2012

HNTB
3715 NORTHSIDE PARKWAY, NW
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327



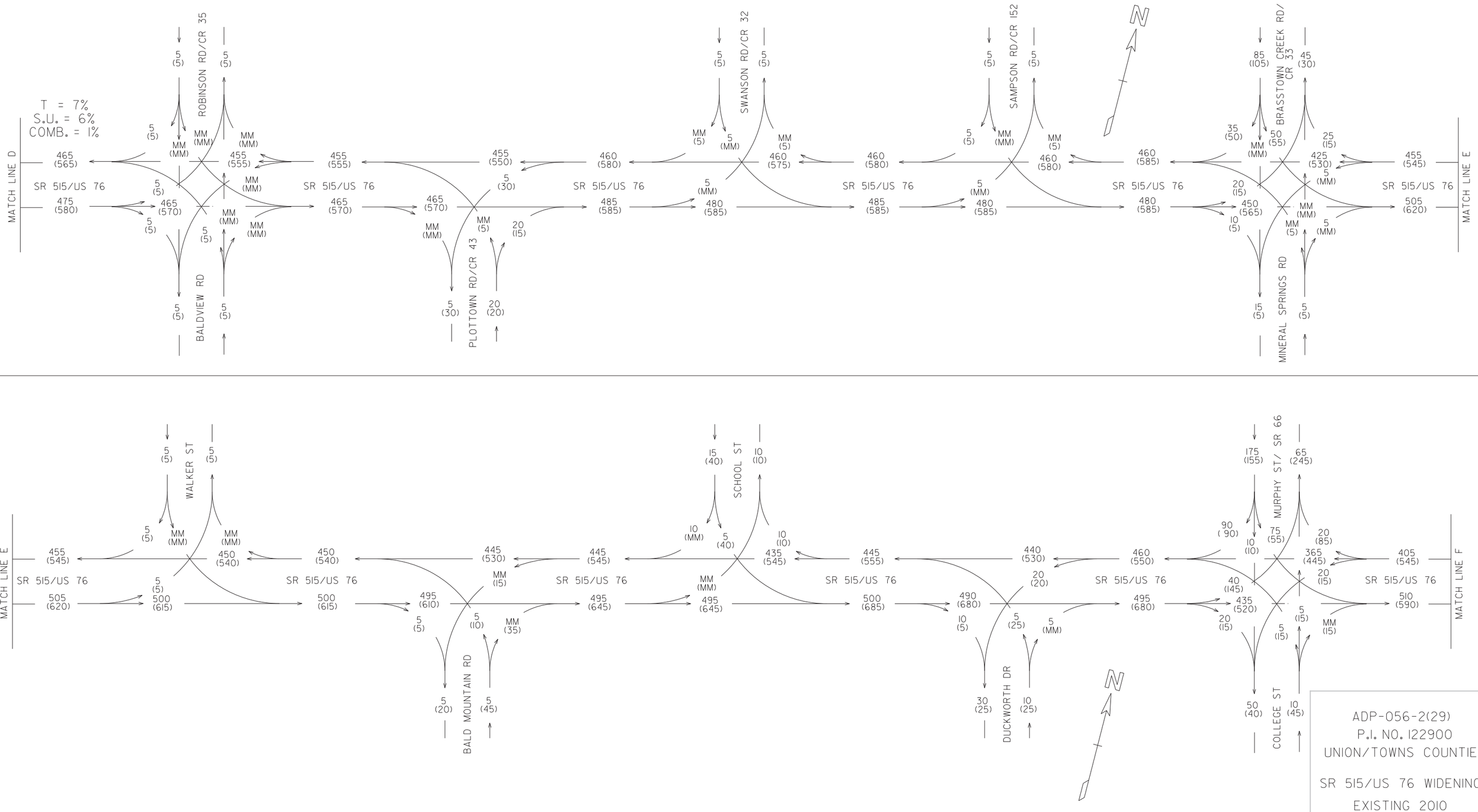
ADP-056-2(29)
P.I. NO. 122900
UNION/TOWNS COUNTIES

SR 515/US 76 WIDENING

EXISTING 2010
AM DHV = 000
PM DHV = (000)

1/ 2012

HNTB
3715 NORTHSIDE PARKWAY, NW
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327



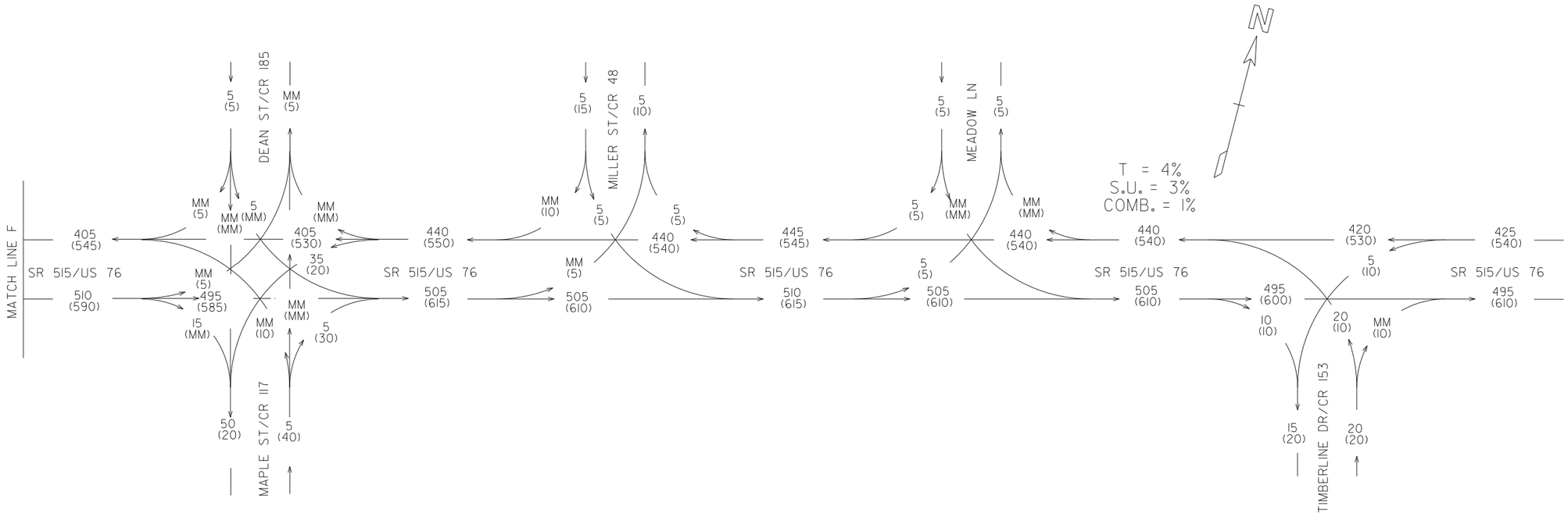
ADP-056-2(29)
P.I. NO. 122900
UNION/TOWNS COUNTIES

SR 515/US 76 WIDENING

EXISTING 2010
AM DHV = 000
PM DHV = (000)

1/ 2012

HNTB
3715 NORTHSIDE PARKWAY, NW
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327



ADP-056-2(29)
P.I. NO. 122900
UNION/TOWNS COUNTIES

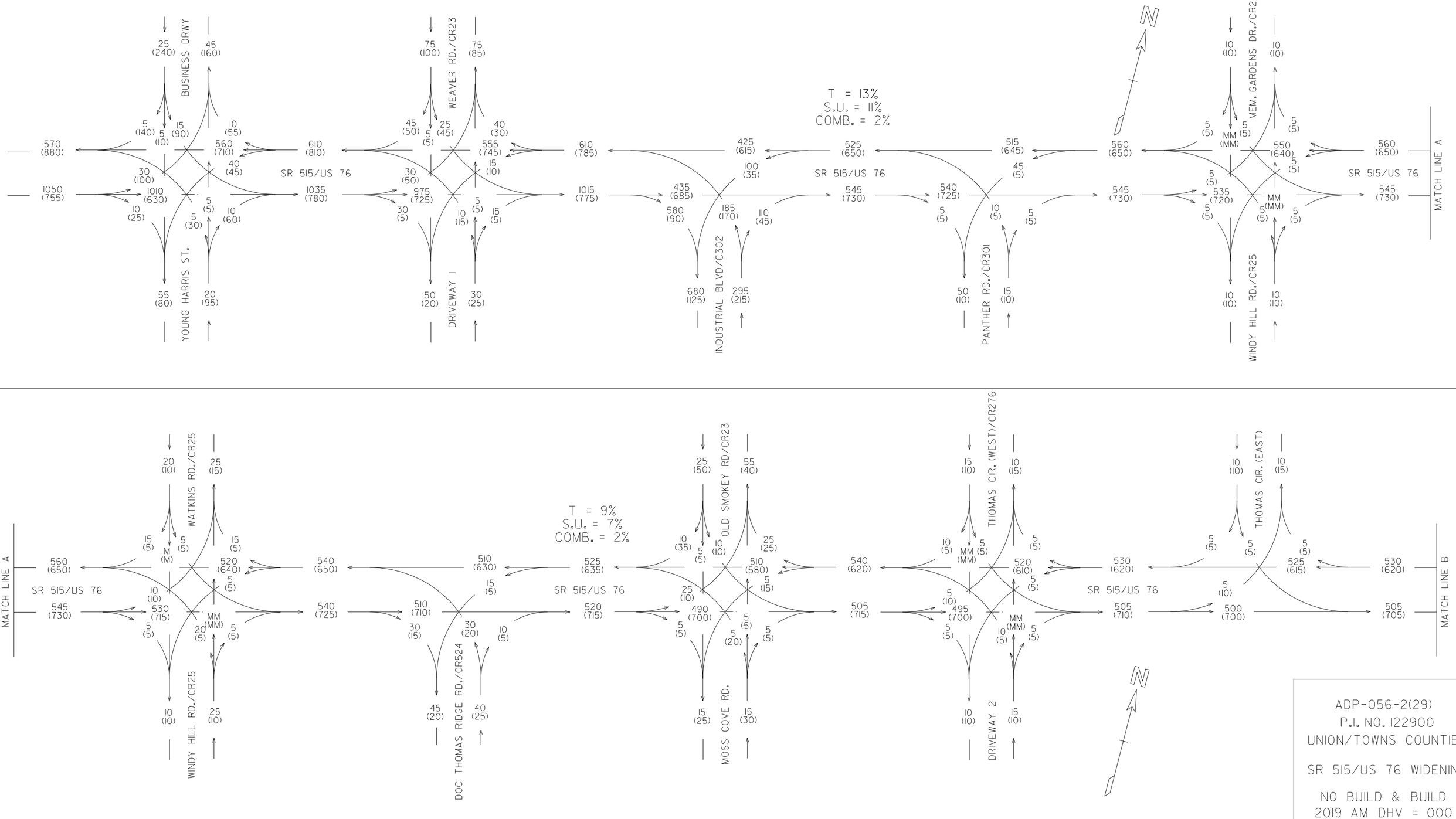
SR 515/US 76 WIDENING

EXISTING 2010
AM DHV = 000
PM DHV = (000)

1/ 2012

SHEET 1 OF 4

HNTB
3715 NORTHSIDE PARKWAY, NW
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327



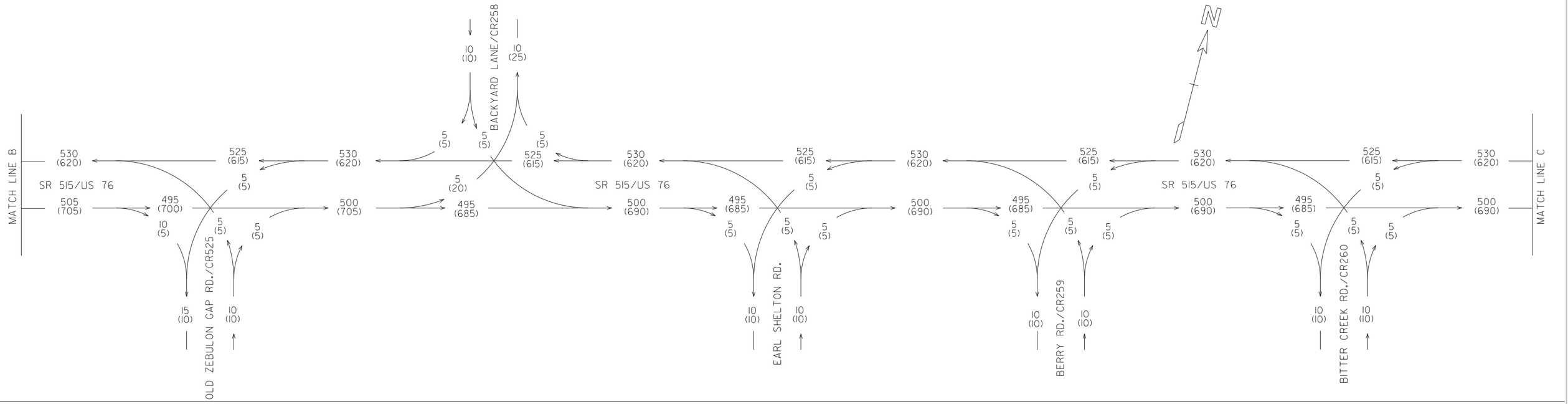
ADP-056-2(29)
P.I. NO. 122900
UNION/TOWNS COUNTIES

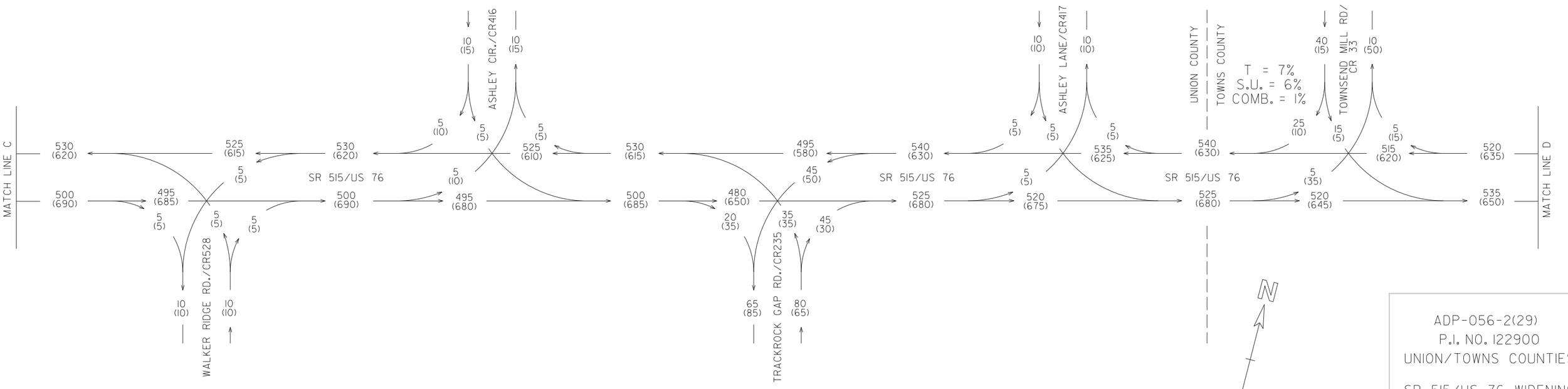
SR 515/US 76 WIDENING

NO BUILD & BUILD
2019 AM DHV = 000
2019 PM DHV = (000)

1/ 2012

HNTB
3715 NORTHSIDE PARKWAY, NW
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327





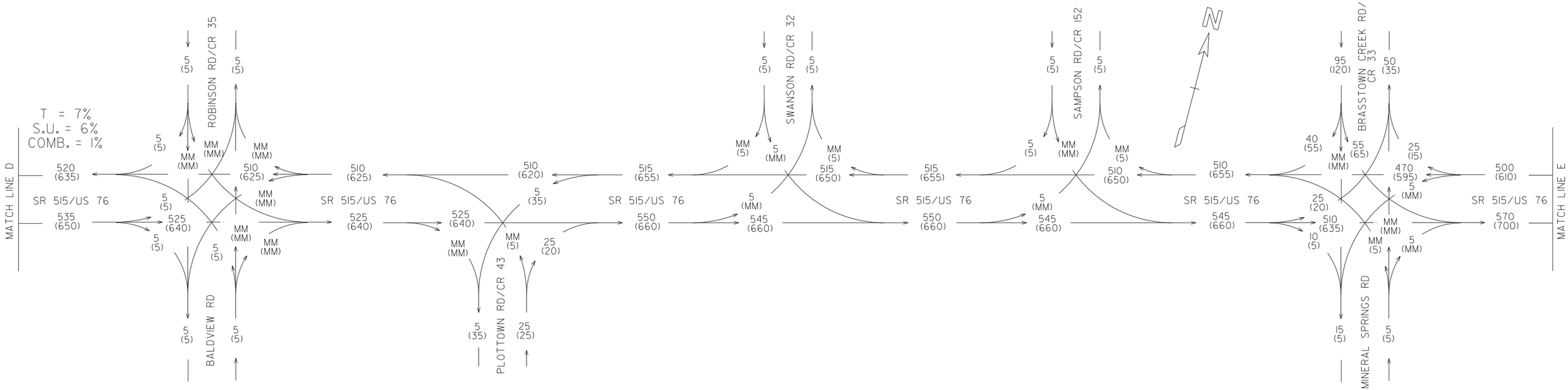
ADP-056-2(29)
P.I. NO. 122900
UNION/TOWNS COUNTIES

SR 515/US 76 WIDENING

NO BUILD & BUILD
2019 AM DHV = 000
2019 PM DHV = (000)

1/ 2012

HNTB
3715 NORTHSIDE PARKWAY, NW
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327



ADP-056-2(29)
P.I. NO. 122900
UNION/TOWNS COUNTIES

SR 515/US 76 WIDENING

NO BUILD & BUILD
2019 AM DHV = 000
2019 PM DHV = (000)

1/ 2012

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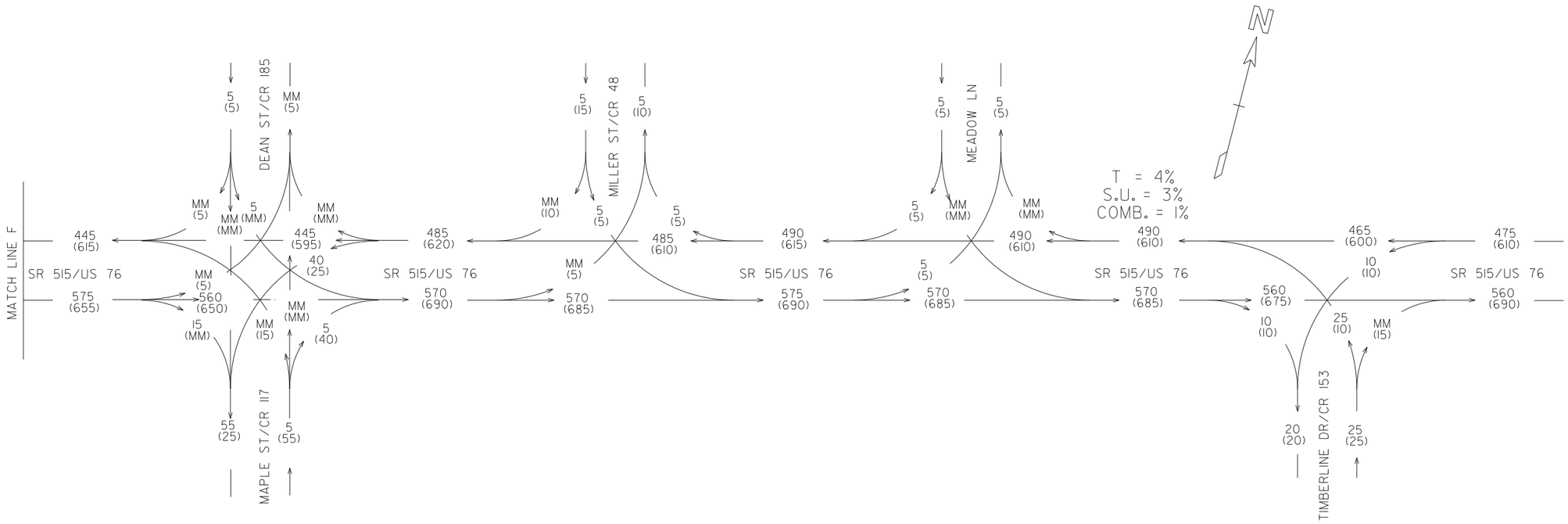

ADP-056-2(29)
P.I. NO. 122900
UNION/TOWNS COUNTIES

SR 515/US 76 WIDENING

NO BUILD & BUILD
2019 AM DHV = 000
2019 PM DHV = (000)

1/ 2012

HNTB
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200 NORTHCREEK, SUITE 800
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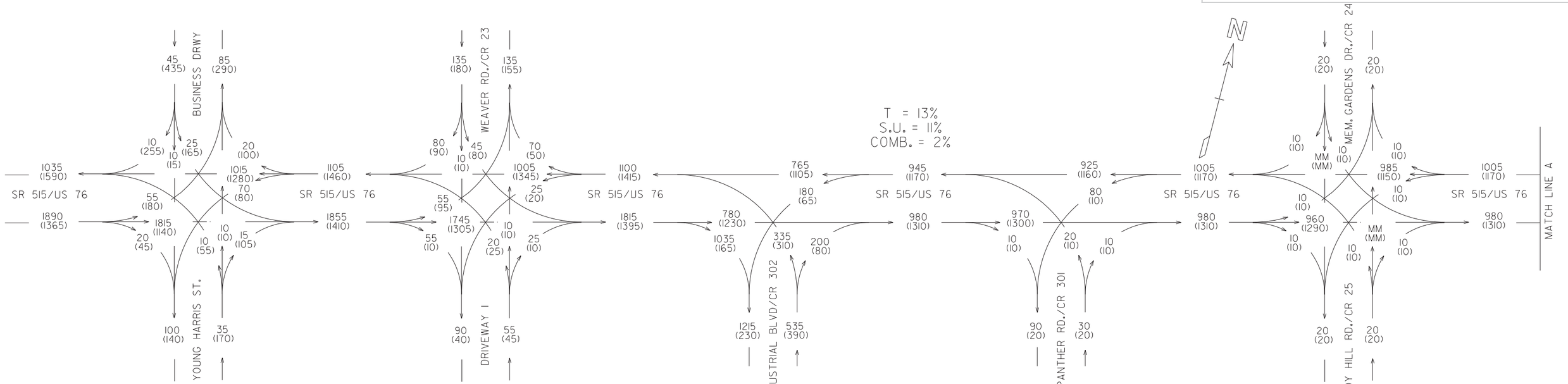

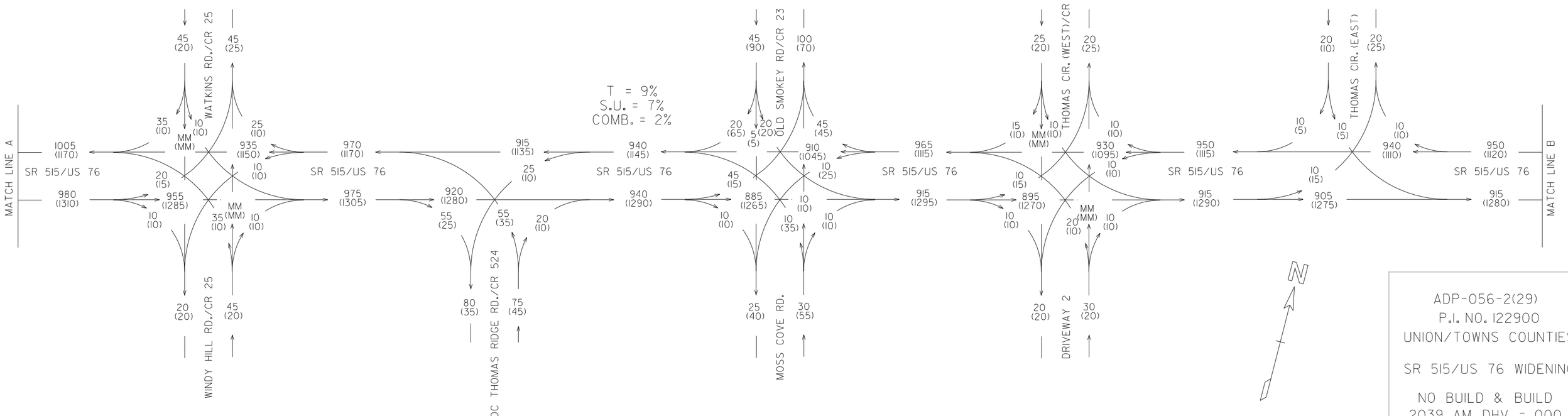

ADP-056-2(29)
P.I. NO. 122900
UNION/TOWNS COUNTIES

SR 515/US 76 WIDENING

NO BUILD & BUILD
2039 AM DHV = 000
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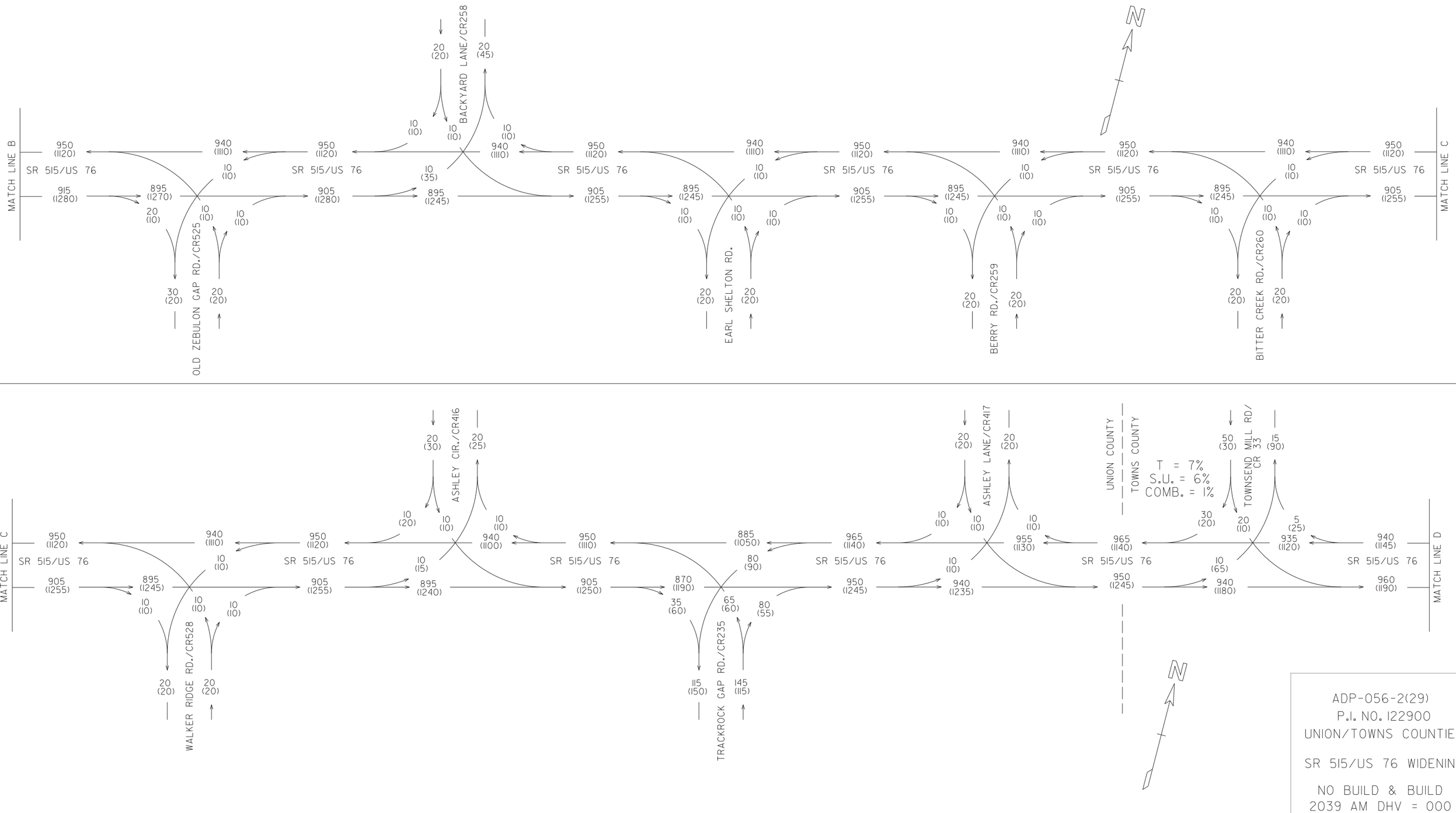

ADP-056-2(29)
P.I. NO. 122900
UNION/TOWNS COUNTIES

SR 515/US 76 WIDENING

NO BUILD & BUILD
2039 AM DHV = 000
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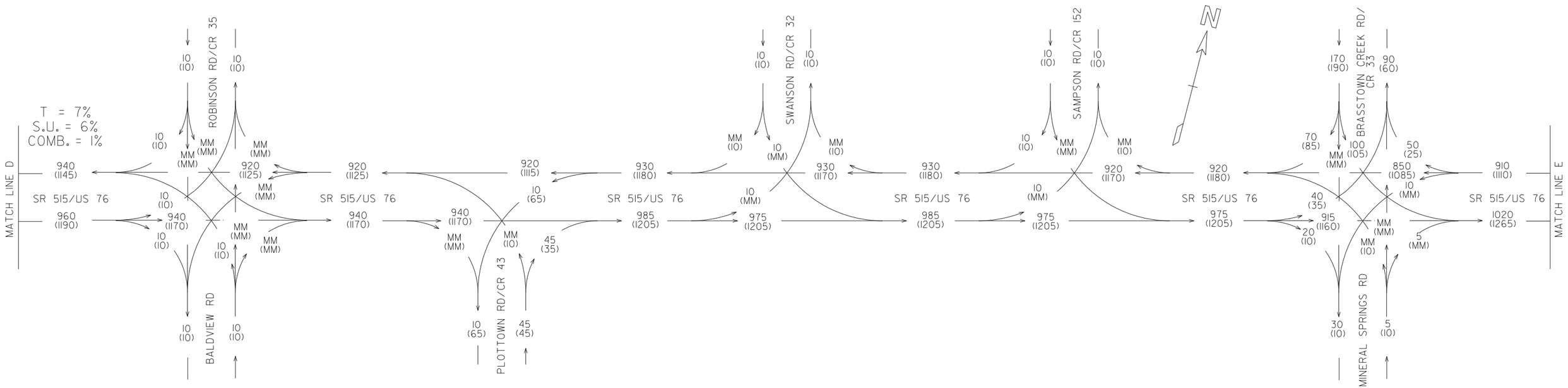

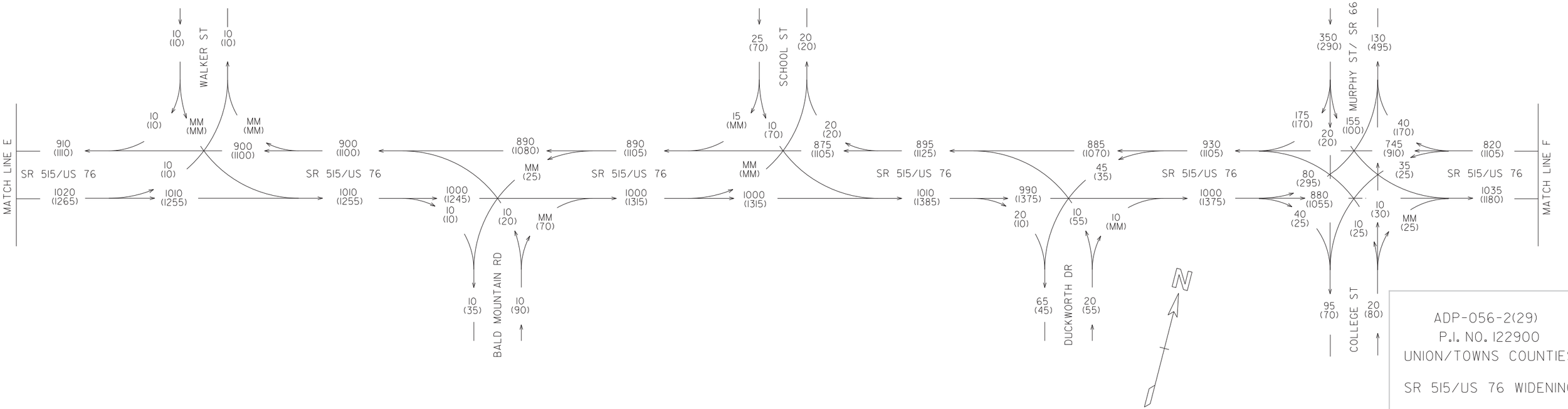

ADP-056-2(29)
P.I. NO. 122900
UNION/TOWNS COUNTIES

SR 515/US 76 WIDENING

NO BUILD & BUILD
2039 AM DHV = 000
2039 PM DHV = (000)

1/ 2012

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3715 NORTHSIDE PARKWAY, NW
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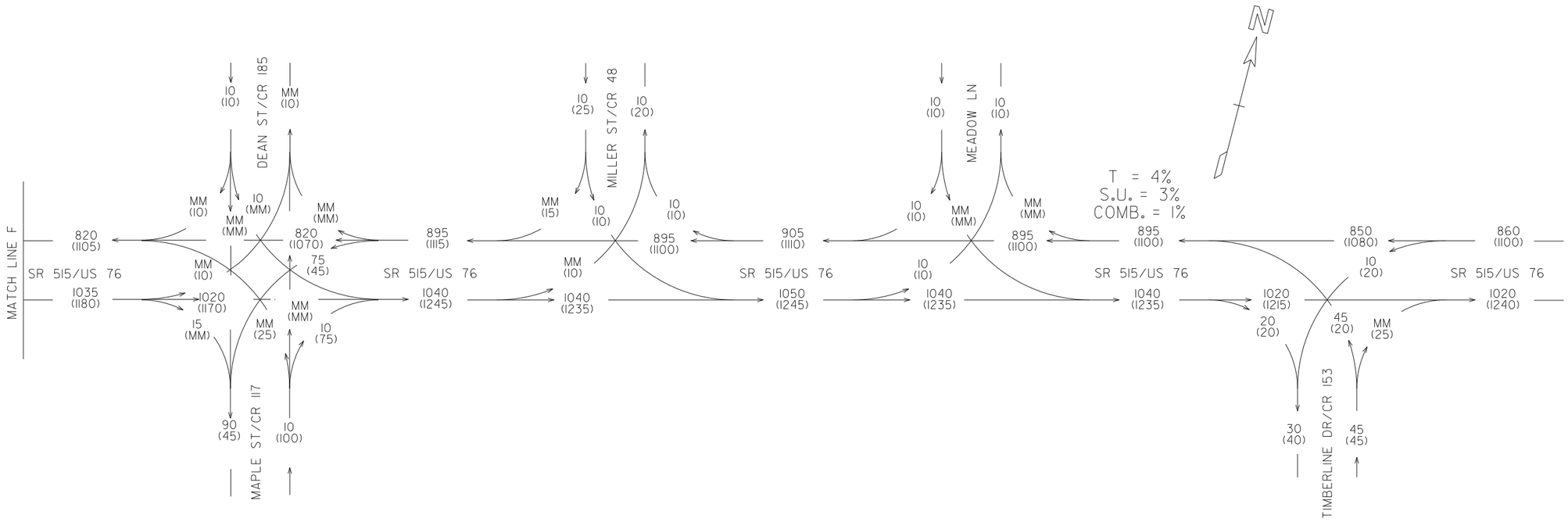

ADP-056-2(29)
P.I. NO. 122900
UNION/TOWNS COUNTIES

SR 515/US 76 WIDENING

NO BUILD & BUILD
2039 AM DHV = 000
2039 PM DHV = (000)

1/ 2012

CONCEPT REPORT

ATTACHMENT 6

CAPACITY ANALYSIS SUMMARY

Existing Capacity Analysis Summary

Signalized Intersections	Signalized Intersections LOS/Control Delay (sec/veh)				Project Number
	2010 - Existing				
	AM		PM		
Harris St.//Driveway @ SR 515	2.5	A	9.0	A	122900
Industrial Blvd./CR 302 @ SR 515	11.1	B	12.2	B	122900
Murphy St/SR 66 @ SR 515	10.3	B	9	A	122900

Unsignalized Intersections	Unsignalized Intersections Worst Side Rd. LOS/Control Delay (sec/veh)				
	2010 - Existing				
	AM		PM		
Driveway//Weaver Road/CR 23 @ SR 515	17.0	C	19.7	C	122900
Panther Road/CR 301 @ SR 515	13	B	14.2	B	122900
Windy Hill Rd./CR 25//Mem Gardens Dr./CR 24 @ SR 515*	12.5	B	14.2	B	122900
Windy Hill Rd./CR 25//Watkins Rd./CR 25 @ SR 515*	18.8	C	21.7	C	122900
Doc Thomas Ridge Rd./CR 524 @ SR 515	20.4	C	28.3	D	122900
Moss Cove Road//Old Smokey Rd./CR 23 @ SR 515	20.5	C	41.9	E	122900
Driveway//Thomas Circle (West) CR 276 @ SR 515	17.9	C	25.5	D	122900
Thomas Circle (East) @ SR 515	14.3	B	16.8	C	122900
Old Zebulon Gap Road/CR 525 @ SR 515	15.5	C	20.5	C	122900
Haines Mtn. Road/CR 258 @ SR 515	14.3	B	17.0	C	122900
Earl Shelton Road @ SR 515	12.9	B	15.6	C	122900
Berry Road/CR 259 @ SR 515	14	B	17.5	C	122900
Bitter Creek Road/CR 260 @ SR 515	14	B	17.5	C	122900
Walker Ridge Road/CR 528 @ SR 515	14	B	18.4	C	122900
Ashley Circle/CR 416 @ SR 515	15.5	C	17.0	C	122900
Trackrock Gap Road/CR 235 @ SR 515	13.2	B	15.3	C	122900
Ashley Lane/CR 417 @ SR 515	12.3	B	13.5	B	122900
Townsend Mill Road @ SR 515	12.5	B	13.4	B	122900
Ronbinson Rd/CR 35/Baldview Rd @ SR 515	13.8	B	15.6	C	122900
Plottown Rd/CR 43 @ SR 515	11.7	B	13.4	B	122900
Swanson Rd/CR 32 @ SR 515	12.9	B	12.7	B	122900
Sampson Rd/CR 152 @ SR 515	11.5	B	12.7	B	122900
Brasstown Creek Rd/CR 33/Mineral Springs Rd @ SR 515	14.8	B	17.3	C	122900
Walker St @ SR 515	11.4	B	12.3	B	122900
Bald Mountain Rd @ SR 515	12.8	B	14.3	B	122900
School St @ SR 515	11.8	B	15.6	C	122900
Duckworth Dr @ SR 515	12.5	B	15.8	C	122900
Dean St/CR 185/Maple St/CR 117 @ SR 515	14.6	B	14.3	B	122900
Miller St/CR 48 @ SR 515	12.8	B	13.2	B	122900
Meadow Ln @ SR 515	11.3	B	12.3	B	122900
Timberline Dr/CR 153 @ SR 515	13	B	14.0	B	122900

Overall TwoLane Analysis					
SR 515 in Union	C		C		122900
SR 515 in Towns	E		E		122900

HCM 2000 Level of Service

PHF = 0.90	LOS	Control Delay (s/veh) Signalized	LOS	Control Delay (s/veh) Unsignalized
Truck = 12% (Union County) and 6% (Towns County)	A	0-10	A	0-10
Trucks on Side Roads = 2%	B	>10-20	B	>10-15
*Analyzed in No-Build as two three-legged intersections,	C	>20-35	C	>15-25
analyzed in Build as one four-legged intersection	D	>35-55	D	>25-35
N/A = No traffic for this time period on the side road	E	>55-80	E	>35-50
**Excessive delay	F	>80	F	>50

SR 515/US 76 Widening From Young Harris St (Union Co) To CR 153/ Timberline Dr (Towns Co)
ADP-056-2(29)
PI No. 122900

No Build Capacity Analysis Summary

Signalized Intersections	Signalized Intersections LOS/Control Delay (sec/veh)								Project Number
	2014 - No Build				2034 - No Build				
	AM		PM		AM		PM		
Harris St./Driveway @ SR 515	5	A	13.8	B	11.6	B	23.5	C	122900
Industrial Blvd./CR 302 @ SR 515	11.8	B	13.7	B	22.4	C	63.9	E	122900
Murphy St/SR 66 @ SR 515	11.3	B	11.3	B	29.1	C	98.5	F	122900

Unsignalized Intersections	Unsignalized Intersections Worst Side Rd. LOS/Control Delay (sec/veh)								
	2014 - No Build				2034 - No Build				
	AM		PM		AM		PM		
Driveway//Weaver Road/CR 23 @ SR 515	19.2	C	24.8	C	660.8	F	**	F	122900
Panther Road/CR 301 @ SR 515	13.9	B	15.4	C	25.3	D	31.3	D	122900
Windy Hill Rd./CR 25//Mem Gardens Dr./CR 24 @ SR 515*	13.3	B	15.5	C	21.9	C	31.4	D	122900
Windy Hill Rd./CR 25//Watkins Rd./CR 25 @ SR 515*	22.2	C	26.7	D	274.8	F	287.8	F	122900
Doc Thomas Ridge Rd./CR 524 @ SR 515	24.9	C	37.0	E	437.7	F	1042.8	F	122900
Moss Cove Road//Old Smokey Rd./CR 23 @ SR 515	24.6	C	64.3	F	256.6	F	**	F	122900
Driveway//Thomas Circle (West) CR 276 @ SR 515	21.1	C	32.8	D	255.3	F	615.2	F	122900
Thomas Circle (East) @ SR 515	15.7	C	19.2	C	36.3	E	57.7	F	122900
Old Zebulon Gap Road/CR 525 @ SR 515	17.6	C	24.8	C	62.7	F	231.5	F	122900
Haines Mtn. Road/CR 258 @ SR 515	15.6	C	19.3	C	36.1	E	73.4	F	122900
Earl Shelton Road @ SR 515	13.9	B	17.6	C	29.0	D	60.6	F	122900
Berry Road/CR 259 @ SR 515	15.3	C	20.1	C	34.3	D	77.1	F	122900
Bitter Creek Road/CR 260 @ SR 515	15.3	C	20.1	C	34.3	D	77.1	F	122900
Walker Ridge Road/CR 528 @ SR 515	15.3	C	21.3	C	34.3	D	77.1	F	122900
Ashley Circle/CR 416 @ SR 515	17.6	C	20.0	C	62.3	F	162.8	F	122900
Trackrock Gap Road/CR 235 @ SR 515	14.4	B	17.2	C	42.2	E	85.1	F	122900
Ashley Lane/CR 417 @ SR 515	13.1	B	14.5	B	20.9	C	27.2	D	122900
Townsend Mill Road @ SR 515	13.4	B	14.5	B	22.6	C	29.0	D	122900
Ronbinson Rd/CR 35/Baldview Rd @ SR 515	14.9	B	14.9	B	26.2	D	36.1	E	122900
Plottown Rd/CR 43 @ SR 515	12.4	B	12.4	B	20.8	C	31.6	D	122900
Swanson Rd/CR 32 @ SR 515	13.6	B	13.6	B	21.5	C	24.5	C	122900
Sampson Rd/CR 152 @ SR 515	12.1	B	12.1	B	18.1	C	24.5	C	122900
Brasstown Creek Rd/CR 33/Mineral Springs Rd @ SR 515	12.0	B	16.6	C	84.9	F	243.1	F	122900
Walker St @ SR 515	11.9	B	11.9	B	17.7	C	22.3	C	122900
Bald Mountain Rd @ SR 515	13.6	B	13.6	B	23.1	C	60.5	F	122900
School St @ SR 515	12.5	B	12.5	B	21.2	C	76.1	F	122900
Duckworth Dr @ SR 515	13.4	B	13.4	B	24.0	C	77.7	F	122900
Dean St/CR 185/Maple St/CR 117 @ SR 515	16.0	C	16.0	C	57.1	F	190.2	F	122900
Miller St/CR 48 @ SR 515	13.7	B	13.7	B	27.4	D	37.0	E	122900
Meadow Ln @ SR 515	11.8	B	11.8	B	17.6	C	22.3	C	122900
Timberline Dr/CR 153 @ SR 515	13.9	B	13.9	B	24.8	C	33.4	D	122900

Overall Twolane Analysis					
SR 515 in Union	C	D	E	E	122900
SR 515 in Towns	E	E	E	E	122900

PHF = 0.90
Truck = 12% (Union County) and 6% (Towns County)
Trucks on Side Roads = 2%
*Analyzed in No-Build as two three-legged intersections, analyzed in Build as one four-legged intersection
N/A = No traffic for this time period on the side road
**Excessive delay

HCM 2000 Level of Service				
LOS	Control Delay (s/veh) Signalized		LOS	Control Delay (s/veh) Unsignalized
A	0-10		A	0-10
B	>10-20		B	>10-15
C	>20-35		C	>15-25
D	>35-55		D	>25-35
E	>55-80		E	>35-50
F	>80		F	>50

Build Capacity Analysis Summary

Signalized Intersections	Signalized Intersections LOS/Control Delay (sec/veh)								Project Number	Comments
	2014 - Build				2034 - Build					
	AM		PM		AM		PM			
Harris St.//Driveway @ SR 515	5.5	A	12.9	B	10.9	B	18.9	B	122900	
Driveway//Weaver Road/CR 23 @ SR 515	-	-	-	-	5.9	A	11.1	B	122900	Signal in 2034
Industrial Blvd./CR 302 @ SR 515	14.9	B	10.1	B	29.1	C	12.7	B	122900	
Murphy St/SR 66 @ SR 515	5.1	A	6.3	A	6.6	A	9.2	A	122900	

Unsignalized Intersections	Unsignalized Intersections Worst Side Rd. LOS/Control Delay (sec/veh)									
	2014 - Build				2034 - Build					
	AM		PM		AM		PM			
Driveway//Weaver Road/CR 23 @ SR 515	15.9	C	16.6	C	-	-	-	-	122900	Signal in 2034
Panther Road/CR 301 @ SR 515	12.4	B	13.1	B	19.5	C	22.2	C	122900	
Windy Hill Rd./CR 25//Mem Gardens Dr./CR 24 @ SR 515*	12.3	B	14.0	B	19.1	C	27.1	D	122900	
Windy Hill Rd./CR 25//Watkins Rd./CR 25 @ SR 515*	15.1	C	15.1	C	30.9	D	30.4	D	122900	
Doc Thomas Ridge Rd./CR 524 @ SR 515	13.5	B	15.9	C	24.0	C	35.0	D	122900	
Moss Cove Road//Old Smokey Rd./CR 23 @ SR 515	14.6	B	19.4	C	27.7	D	70.7	E	122900	
Driveway//Thomas Circle (West) CR 276 @ SR 515	13.8	B	15.3	C	24.0	C	31.7	D	122900	
Thomas Circle (East) @ SR 515	12.1	B	13.2	B	17.8	C	21.2	C	122900	
Old Zebulon Gap Road/CR 525 @ SR 515	12.0	B	13.9	B	17.3	C	24.6	C	122900	
Haines Mtn. Road/CR 258 @ SR 515	12.1	B	13.4	B	17.8	C	22.5	C	122900	
Earl Shelton Road @ SR 515	12.4	B	14.3	B	18.2	C	25.8	D	122900	
Berry Road/CR 259 @ SR 515	12.0	A	13.8	B	17.3	C	24.0	C	122900	
Bitter Creek Road/CR 260 @ SR 515	12.0	B	13.8	B	17.3	C	24.0	C	122900	
Walker Ridge Road/CR 528 @ SR 515	12.0	B	13.8	B	17.3	C	24.0	C	122900	
Ashley Circle/CR 416 @ SR 515	12.1	B	12.4	B	17.8	C	19.6	C	122900	
Trackrock Gap Road/CR 235 @ SR 515	12.5	B	14.8	B	21.8	C	37.1	E	122900	
Ashley Lane/CR 417 @ SR 515	12.4	B	13.5	B	18.4	C	22.4	C	122900	
Townsend Mill Road @ SR 515	11.8	B	12.6	B	17.0	C	19.8	C	122900	
Robinson Rd/CR 35/Baldview Rd @ SR 515	13.7	B	15.3	C	23	C	31.2	D	122900	
Plottown Rd/CR 43 @ SR 515	10.3	B	11.8	B	13.0	B	18.1	C	122900	
Swanson Rd/CR 32 @ SR 515	12.7	B	10.7	B	19.0	C	14.0	B	122900	
Sampson Rd/CR 152 @ SR 515	10.1	B	10.7	B	12.2	B	14.0	B	122900	
Brasstown Creek Rd/CR 33/Mineral Springs Rd @ SR 515	6.8	A	7.6	A	13.3	B	19.2	C	122900	Roundabout
Walker St @ SR 515	9.9	A	11.1	B	11.9	B	15.2	C	122900	
Bald Mountain Rd @ SR 515	11.2	B	12.3	B	14.4	B	21.8	C	122900	
School St @ SR 515	10.5	B	13.3	B	13.0	B	24.2	C	122900	
Duckworth Dr @ SR 515	11.1	B	13.6	B	14.8	B	25.1	D	122900	
Dean St/CR 185/Maple St/CR 117 @ SR 515	12.7	B	13.3	B	19.9	C	32.4	D	122900	
Miller St/CR 48 @ SR 515	11.4	B	12	B	15.2	C	19.1	C	122900	
Meadow Ln @ SR 515	10.4	B	11.1	B	13.1	B	15.2	C	122900	
Timberline Dr/CR 153 @ SR 515	6.6	A	6.7	A	13.4	B	13.5	B	122900	Roundabout
Murphy St/SR 66 @ SR 515 Bypass	10.0	B	10.5	B	16.5	C	16.7	B	122900	

Overall Multilane or Two-Lane Analysis									
SR 515 in Union	B		A		C		B		122900
SR 515 in Towns (with bypass)	E		E		E		E		122900

PHF = 0.90
Truck = 12% (Union County) and 6% (Towns County)
Trucks on Side Roads = 2%
*Analyzed in No-Build as two three-legged intersections, analyzed in Build as one four-legged intersection
N/A = No traffic for this time period on the side road
Potential treatments to intersections at Moss Cove Rd and Trackrock Gap Rd include signalization or left turn prohibition by 2034.

HCM 2000 Level of Service

LOS	Control Delay (s/veh) Signalized	LOS	Control Delay (s/veh) Unsignalized
A	0-10	A	0-10
B	>10-20	B	>10-15
C	>20-35	C	>15-25
D	>35-55	D	>25-35
E	>55-80	E	>35-50
F	>80	F	>50

CONCEPT REPORT

ATTACHMENT 7a

ROUNDABOUT DATA
LIGHTING COMMITMENT LETTER

City of Young Harris
"The Enchanted Valley"

Georgia Department of Transportation
600 West Peachtree Street NW
25th Floor
Atlanta, GA 30308
Attn: Steve Adewale, PE

RE: PI# 122900, ADP00-0056-02(029)

To whom it may concern,

This letter is in regards to the Department of Transportation project that includes the City of Young Harris. As we understand it, the scope of the project will include roundabouts on either side of a bypass. This letter is to accept the roundabouts in the City of Young Harris and agrees to pay for the lighting costs associated with them.

If there is anything further you need, please contact me at Young Harris City Hall at 706-379-3717.

Respectfully,

Andrea Gibby

Andrea Gibby
Mayor, City of Young Harris

CONCEPT REPORT

ATTACHMENT 7b

ROUNDABOUT DATA
PEER REVIEW AND RESPONSES

313 Price Place, Suite #5
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info@mtjengineering.com
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Technical Memorandum

TO: Xuewen Shawn Le, PE, PTOE, Project Manager – HNTB Corporation

FR: Mark T. Johnson, PE, MTJ Engineering, LLC

RE: Roundabout Review – Stage I Operational Analysis and Corrective Horizontal Design: SR 515

DT: September 3, 2015

As requested, we have completed the following Stage I Review for this project on the two roundabouts located along SR 515 bypass in Young Harris, Georgia (southerly three-leg roundabout, and northerly four-leg roundabout) to include:

- Operational/Capacity analysis – to establish necessary laneage based on long-range 2039 design-year flows utilizing Rodel v1.88
- Horizontal geometric reviews on the proposed HNTB roundabout designs – first an initial horizontal design review, then a final review to include:
  - Fast Path, View Angle, and large truck movement checks (WB-65)
  - Development of MTJ Corrective Horizontal re-design geometrics for the two roundabouts reflective of the capacity analysis and design review issues.

STAGE I - OPERATIONAL REVIEW

1. Operations/Laneage: Avoid Over-Design and/or Under-Design

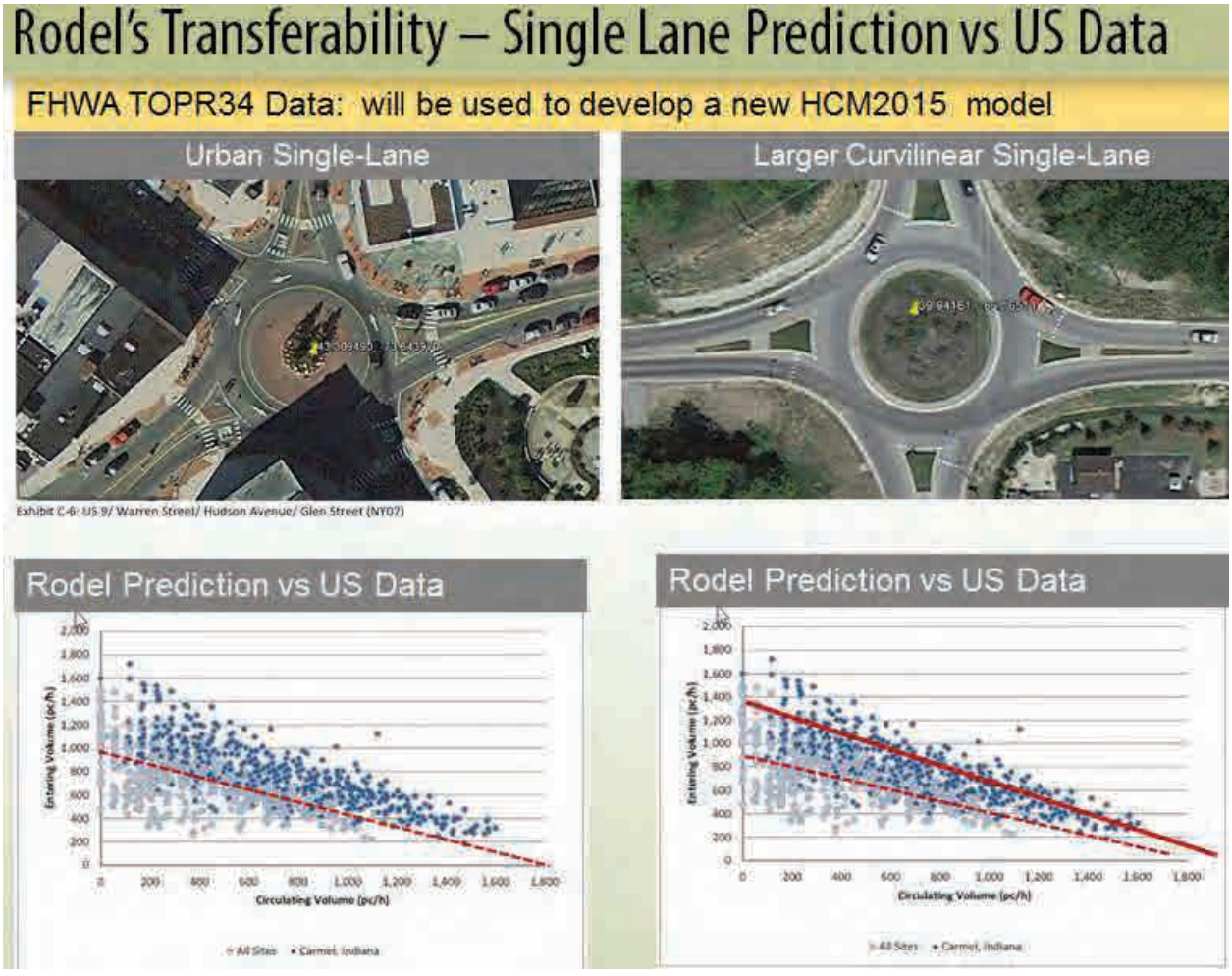
- Match Capacity to Demand
  - **a.** Meet operational requirements and objectives that allow for safe operations for near- to long-term traffic demand.
  - **b.** Minimize entry lanes to the essential minimums in order to:
    - **i.** simplify decision making,
    - **ii.** reduce conflict points,
    - **iii.** improve safety for all modes
  - **c.** Reduced laneage may provide opportunities for geometric modifications to minimize impacts, via reduced footprint, and/or cross-section widths and the associated acquisition or construction costs.

Roundabout Specific Analysis Software

Rodel v.1.88

Rodel is a 'high definition,' (vs. low definition) accurate analysis program that incorporates both the U.K. capacity model and the HCM 2010 capacity model. Rodel v.1.88 extends the application of the U.K. capacity equations to U.S./North American design practices and principles to include lane-based analysis, analysis of right turn bypass lanes, and flared entries.

It has been previously reported, and often perceived, that the U.K.-derived capacity predictions over-predict capacity on U.S. roundabouts since U.K. drivers are more accustomed to roundabouts. However, a thorough review and comparison of U.S. field-measured capacity data collected by FHWA in 2002 and 2012 to the original U.K. data reveals a strong correlation between U.S. capacity data compared to U.K. data used as the basis for Rodel's capacity equations. Rodel capacity predictions demonstrate that there is, in fact, a strong correlation between U.S. drivers and capacity to Rodel's capacity predictions, which is shown graphically below.



HCM and Rodel both utilize 'Time Dependent Queuing Theory' (developed by U.S. researcher P.M. Morse) and because delay is derived from queuing theory equations, nothing in this respect is different from HCM to Rodel. However, one important analysis feature that differentiates Rodel v1.88 from HCS

and other analysis programs that will effect design decisions relative to necessary laneage requirements / footprint is described below:

- Rodel incorporates 'High Definition' queuing theory equations (vs. low definition). The importance of 'high definition' queuing theory equations is at high v/c ratios Rodel provides accurate and stable predictions for Q and Delay.

- This is in contrast to HCS and other programs that use 'low definition' queuing theory equations, as these become unstable at v/c ratios above ~0.90 resulting in additional unnecessary laneage to maintain acceptable LOS. For more information on this issue and Rodel, please visit their website at www.rodel-interactive.com.

Establishing this basis of information is important to this analysis, as the Rodel analysis of this roundabout shows high v/c ratios for some movements but acceptable levels of Delays on the recommended laneage established by this analysis. Please see analysis output and lane diagram exhibits attached.

2. Operational Summary – See attached exhibit summaries

We have conducted a capacity analysis with the roundabout-specific capacity software program Rodel v.1.88 on the Long-Range 2039 AM/PM peak hour turning movements provided by others.

Rodel's accurate capacity predictions provide a high level of confidence with expected operations and lane recommendations that form the basis for the horizontal design.

LOS	Signalized Intersection	Un-signalized Intersection
A	≤10 sec	≤10 sec
B	11-20 sec	10-15 sec
C	21-35 sec	15-25 sec
D	36-55 sec	25-35 sec
E	56-79 sec	35-50 sec
F	≥80 sec	≥50 sec

- **South Roundabout** – See attached graphics

The SR 515 Bypass leg entry only needs a single-lane entry, SB requires a shared Thru-Right and Thru to provide acceptable LOS on the long range traffic flows.

The NB SR 515 entry is recommended as two-lane entry with the lane assignment of Left Only - Thru.

Rodel analyzes this lane assignment by checking the left lane then the thru-lane traffic movements individually on a single-lane and zeroing out the other movement. In this case, the SR 515 Thru movement is the higher of the two movements, and is therefore the critical movement to be checked if the thru traffic volumes may need to be shared over both entry lanes (Thru-Left – Thru), or if a Left Only - Thru lane will provide adequate capacity to meet the long-range operational requirements. In this case, the analysis shows that the Left Only - Thru lane assignment provides very good LOS on the long-range 2039 traffic with less than 15 seconds of delay.

- **North Roundabout** – See attached graphics

The NB SR 515 Entry and SR 515 Bypass leg entry only need single lane entries to provide acceptable LOS on the long range traffic flows. The SB SR 515 entry requires a RT only - Thru-Left.

Please see full Rodel output attached separately.

STAGE I – HORIZONTAL DESIGN REVIEW AND DEVELOPMENT – Please see attached Exhibits

a. **Fastest Path Analysis – Speed Control (FHWA Guide Section 6.7)** – Attached
The MTJ corrective re-design meets FHWA guidelines to achieve a theoretical fast path speed for through movements less than 25 mph for a single-lane entry, and 29 mph for two-lane entries. The Fast Path construct checks are attached.

b. **WB-65 Design Vehicle Truck Templates** – Attached
The MTJ corrective re-design provides good accommodations for the large truck design vehicle WB-65 for this project. Please see truck swept path templates attached. The designs incorporate truck blisters for two RT movements as an added design feature to provide for the RT swept paths as a protection against any truck that may happen to jump the curb in those areas.

c. **Entry Angles (View and Phi angles) FHWA Guide Section 6.7.4** – Attached
The MTJ corrective re-design meets FHWA Roundabout Guide NCHRP 672 design principles for View and Entry Angles.

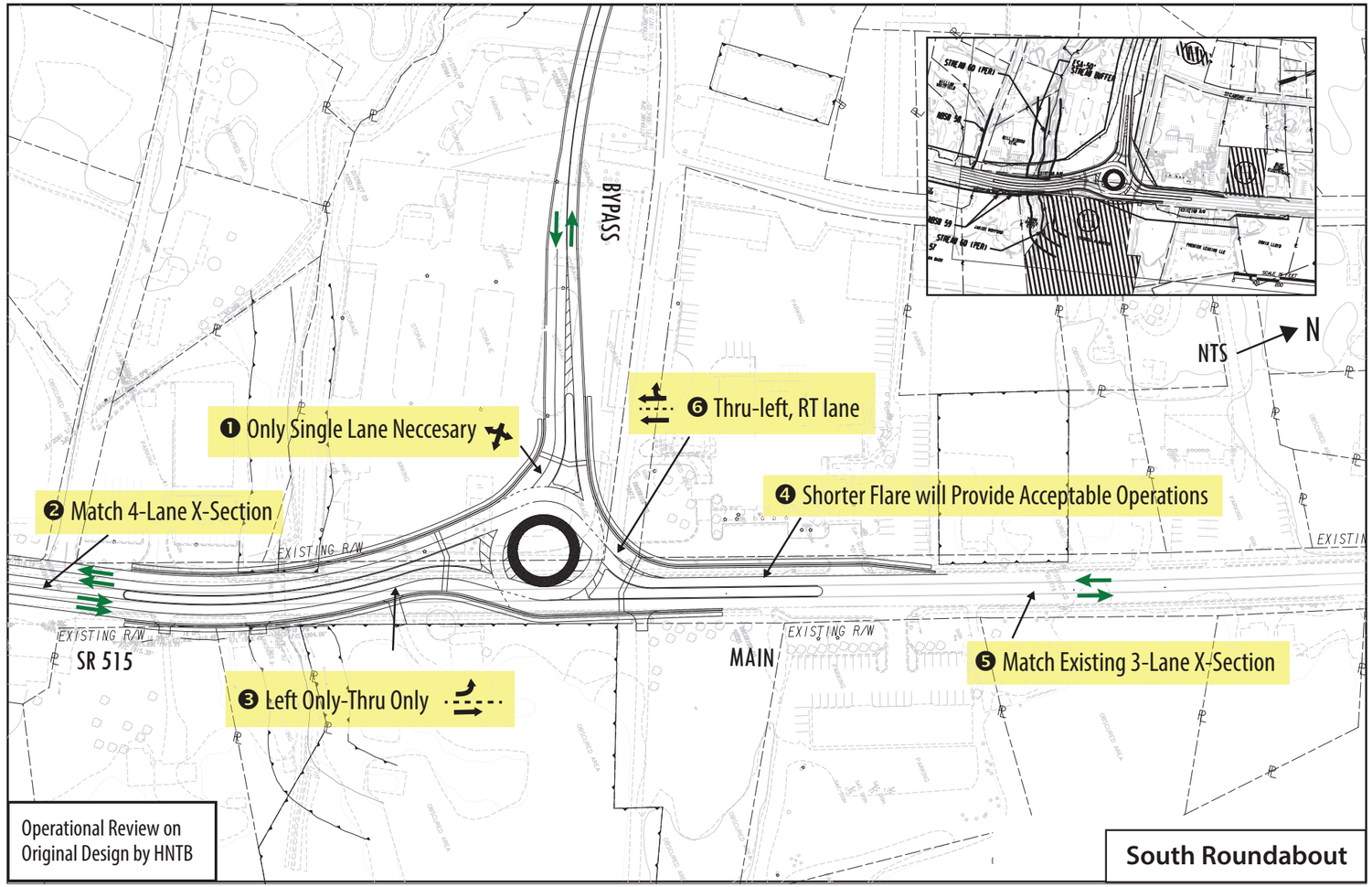
If you have any questions, please do not hesitate to contact me.

Sincerely,

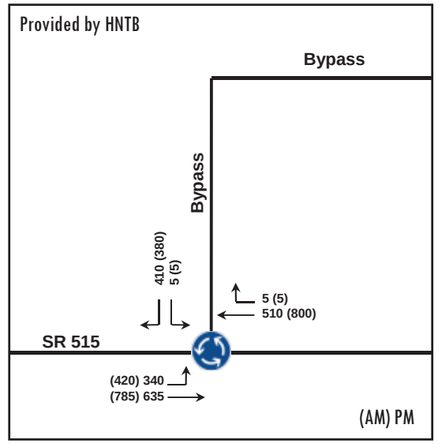
Mark T. Johnson, PE (GA)

OPERATIONAL REVIEW EXHIBITS

- South 3 Leg Roundabout
- North 4 Leg Roundabout



AM/PM Peak Hour Traffic 2039



MTJ AM/PM Rodel Analysis

AM CAPACITY ANALYSIS - 2039 LONG RANGE FLOWS 50% CL

	Leg	Leg Names	Bypass Type	Flows (veh/hr) Arrival Flow Entry	Arrival Flow Bypass	Opposing Flow Entry	Opposing Flow Bypass	Exit Flow	Capacity (veh/hr) Capacity Entry	Capacity Bypass	Average VCR Entry	Average VCR Bypass
Flows and Capacity	1	NB SR 515	None	747		6		1081	1033		0.7347	
	2	SB SR 515	None	606		0		751	1647		0.3701	
	3	EB By-Pass	None	488		600		6	788		0.6316	

	Leg	Leg Names	Bypass Type	Average Delay (sec) Entry	Average Delay (sec) Bypass	Average Delay (sec) Leg	95% Queue (veh) Entry	95% Queue (veh) Bypass	Level of Service Entry	Level of Service Bypass	Level of Service Leg
Delays, Queues, LOS	1	NB SR 515	None	7.96		7.96	4.58		A		A
	2	SB SR 515	None	2.79		2.79	1.32		A		A
	3	EB By-Pass	None	8.29		8.29	3.23		A		A

PM CAPACITY ANALYSIS - 2039 LONG RANGE FLOWS 50% CL

	Leg	Leg Names	Bypass Type	Flows (veh/hr) Arrival Flow Entry	Arrival Flow Bypass	Opposing Flow Entry	Opposing Flow Bypass	Exit Flow	Capacity (veh/hr) Capacity Entry	Capacity Bypass	Average VCR Entry	Average VCR Bypass
Flows and Capacity	1	NB SR 515	None	872		6		1310	1033		0.8635	
	2	SB SR 515	None	894		0		875	1807		0.4984	
	3	EB By-Pass	None	428		888		6	698		0.6245	

	Leg	Leg Names	Bypass Type	Average Delay (sec) Entry	Average Delay (sec) Bypass	Average Delay (sec) Leg	95% Queue (veh) Entry	95% Queue (veh) Bypass	Level of Service Entry	Level of Service Bypass	Level of Service Leg
Delays, Queues, LOS	1	NB SR 515	None	11.39		11.39	7.57		B		B
	2	SB SR 515	None	3.37		3.37	2.29		A		A
	3	EB By-Pass	None	9.38		9.38	3.13		A		A

*15 min. results

NOTES

Acceptable operation provided with the following laneage recommendations:

❶ Only Single Lane Neccesary
❷ Match Existing 4-Lane X-Section
❸ Flared Two Lane Entry will Provide Acceptable Operations *This Option Requires Two Lane Exit with Lane Drop to Match Existing
❹ Shorter Flare will Provide Acceptable Operations
❺ Match Existing 3-Lane X-Section

SR 515 CORRIDOR (YOUNG HARRIS BY-PASS)
YOUNG HARRIS, GA

2039 LANAGE RECOMMENDATIONS- SOUTH ROUNDABOUT
(RODEL V.1.88 OPERATIONAL ANALYSIS)
9.3.2015

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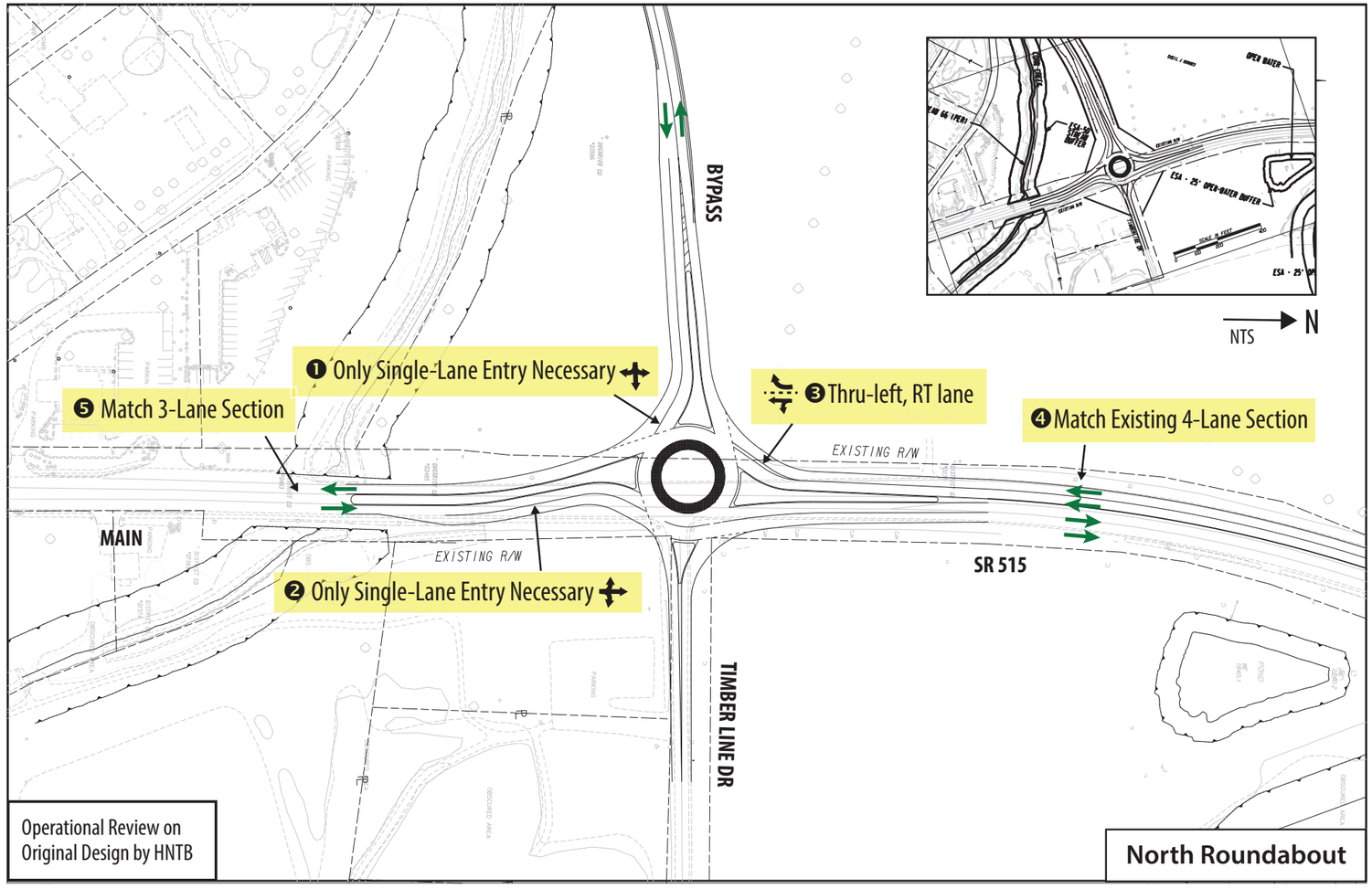
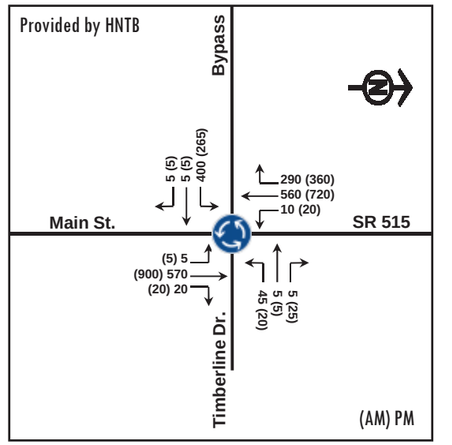


AM/PM Peak Hour Traffic 2039



MTJ AM/PM Rodel Analysis

AM CAPACITY ANALYSIS - 2039 LONG RANGE FLOWS 50% CL

	Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
				Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
				Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
Flows and Capacity	1	NB SR 515	None	661		459		676	953		0.7065	
	2	WB existing	None	61		1079		39	707		0.0873	
	3	SB SR 515	Yield	633	322	61	61	1078	973	980	0.6610	0.3326
	4	EB new bypass	None	458		682		333	881		0.6828	

	Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
				Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
Delays, Queues, LOS	1	NB SR 515	None	9.22		9.22	4.73		A		A
	2	WB existing	None	4.96		4.96	0.24		A		A
	3	SB SR 515	Yield	7.45	5.16	6.68	3.60	1.27	A	A	A
	4	EB new bypass	None	10.64		10.64	3.80		B		B

PM CAPACITY ANALYSIS - 2039 LONG RANGE FLOWS 50% CL

	Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
				Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
				Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
Flows and Capacity	1	NB SR 515	None	1028		321		824	1029		1.0485	
	2	WB existing	None	56		1278		49	640		0.0878	
	3	SB SR 515	Yield	622	400	33	33	1299	995	993	0.8537	0.4077
	4	EB new bypass	None	306		640		410	606		0.5129	

	Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
				Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
Delays, Queues, LOS	1	NB SR 515	None	28.16		28.16	23.03		D		D
	2	WB existing	None	5.48		5.48	0.24		A		A
	3	SB SR 515	Yield	11.53	5.66	9.62	7.23	1.73	B	A	A
	4	EB new bypass	None	8.91		8.91	2.14		A		A

*15 min. results

NOTES

Acceptable operation provided with the following laneage recommendations:

❶ Only Single Lane Entry Necessary
❷ Only Single Lane Entry Necessary
❸ Thru-left, RT lane
❹ Match Existing 4-Lane Section
❺ Match Existing 3-Lane Section

SR 515 CORRIDOR (YOUNG HARRIS BY-PASS)
YOUNG HARRIS, GA

2039 LANEAGE RECOMMENDATIONS - NORTH ROUNDABOUT
(RODEL V.1.88 OPERATIONAL ANALYSIS)
9.3.2015

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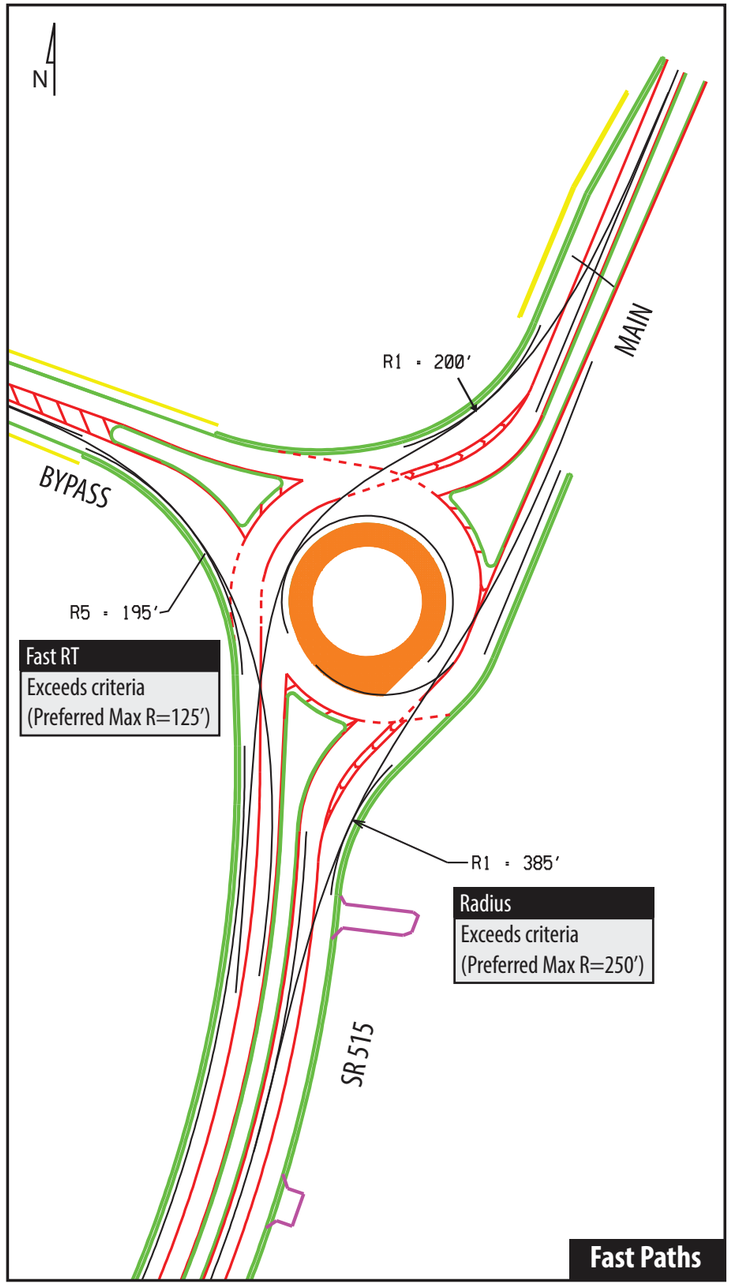
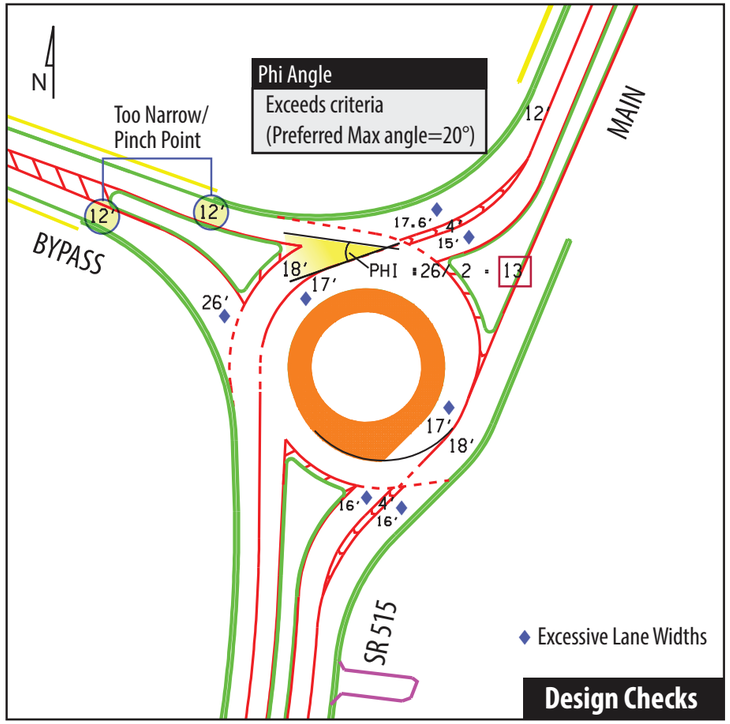
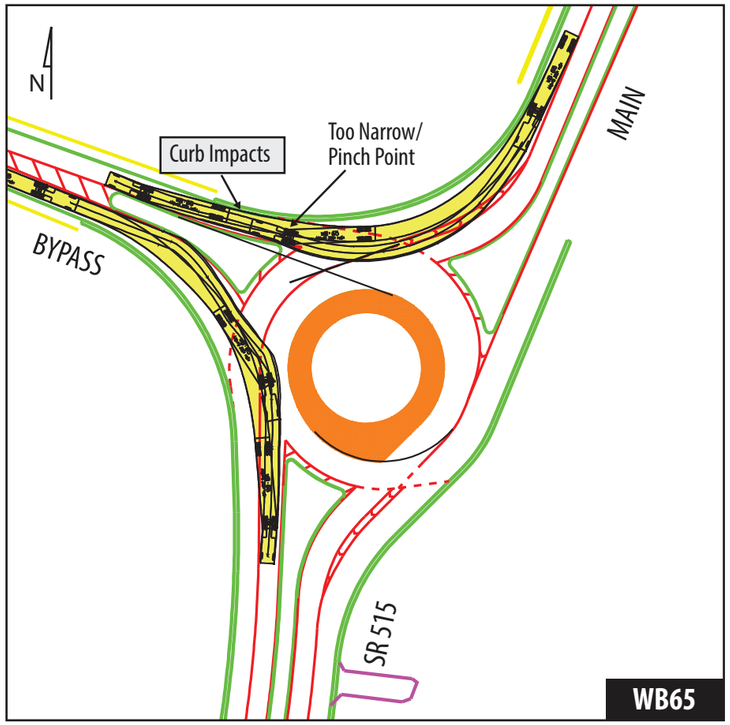
GEOMETRIC REVIEW AND CORRECTIVE RE-DESIGN EXHIBITS

- South 3 Leg Roundabout

- North 4 Leg Roundabout







Review Comments

- The Fast Path analysis finds the NB 515 entry exceeds recommended maximum values as per (NCHRP 672).
- Truck Movement analysis shows geometric modifications are necessary to improve large truck movement accommodations.
- SB entry phi angle exceeds criteria.
- Entry and circulting widths exceed recommended widths.

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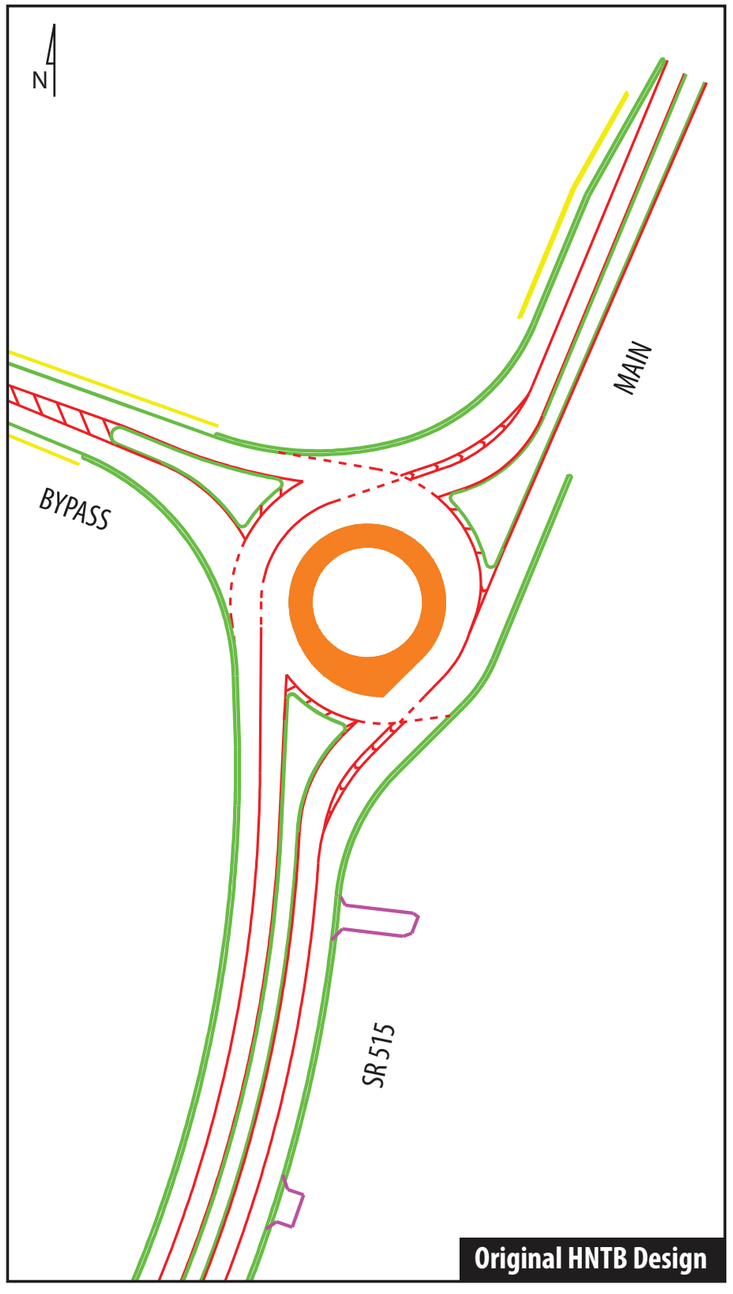
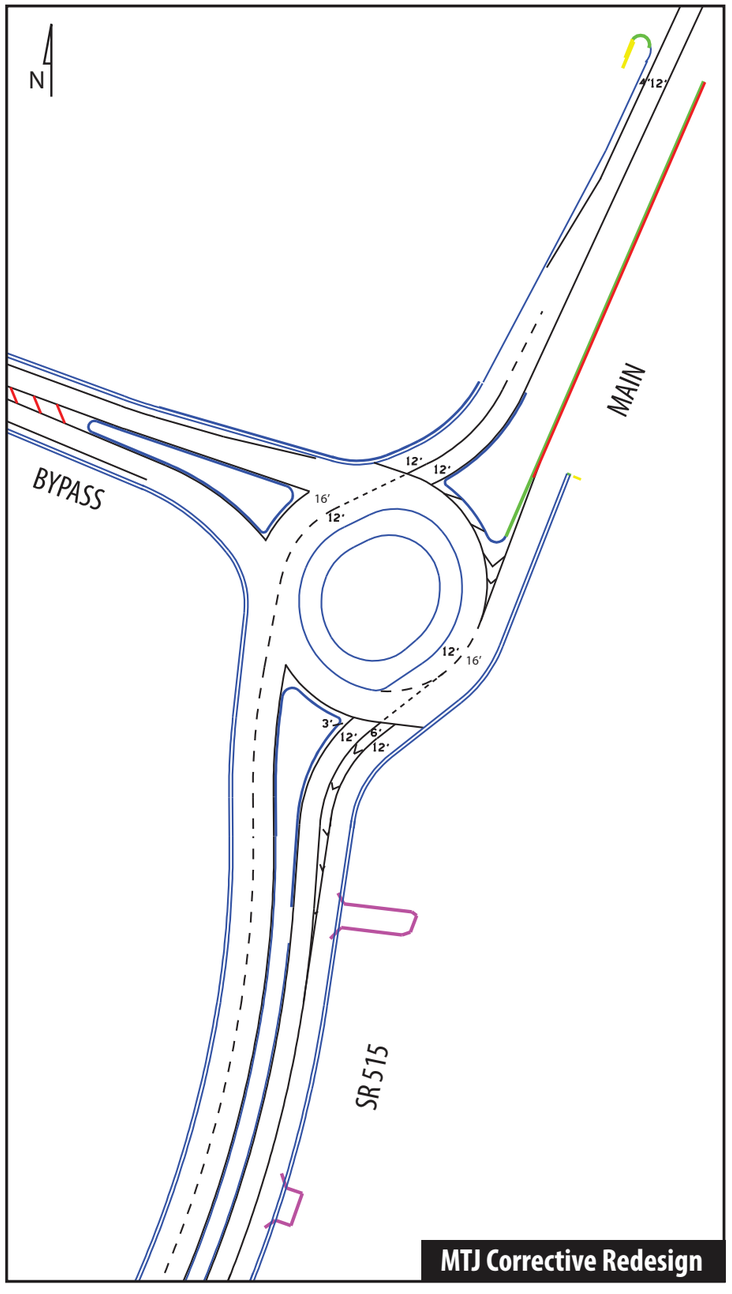
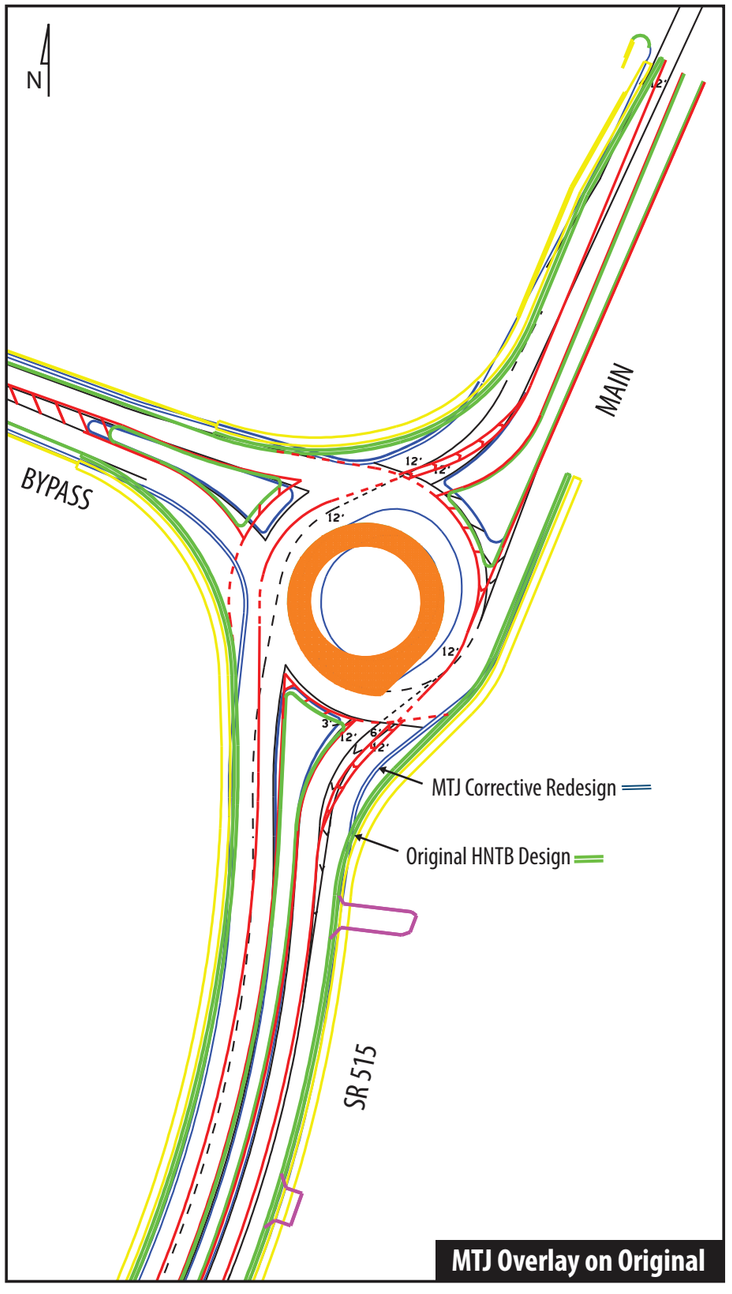


Original HNTB Design



MTJ Corrective Redesign



MTJ Overlay on Original

SR 515 CORRIDOR (YOUNG HARRIS BY-PASS)

YOUNG HARRIS, GA

MTJ CORRECTIVE REDESIGN-SOUTH ROUNDABOUT

9.3.2015

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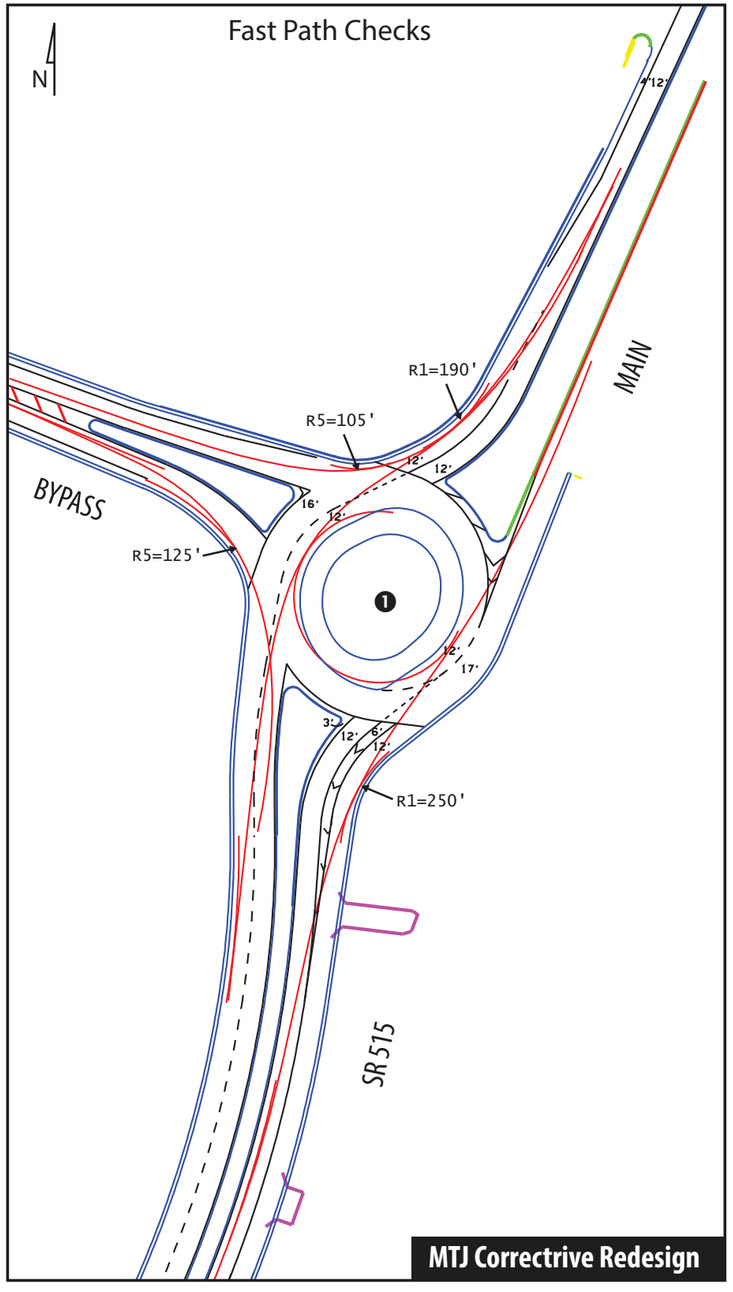

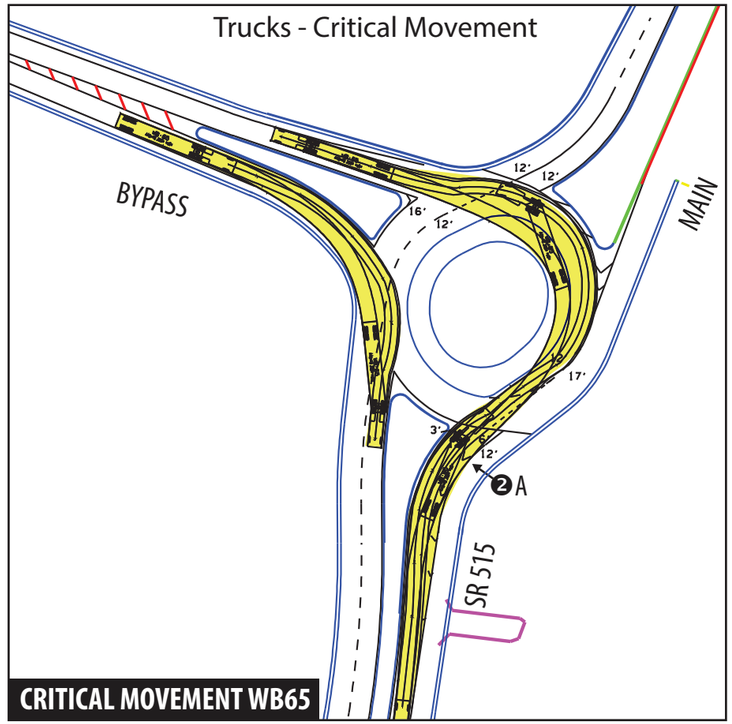

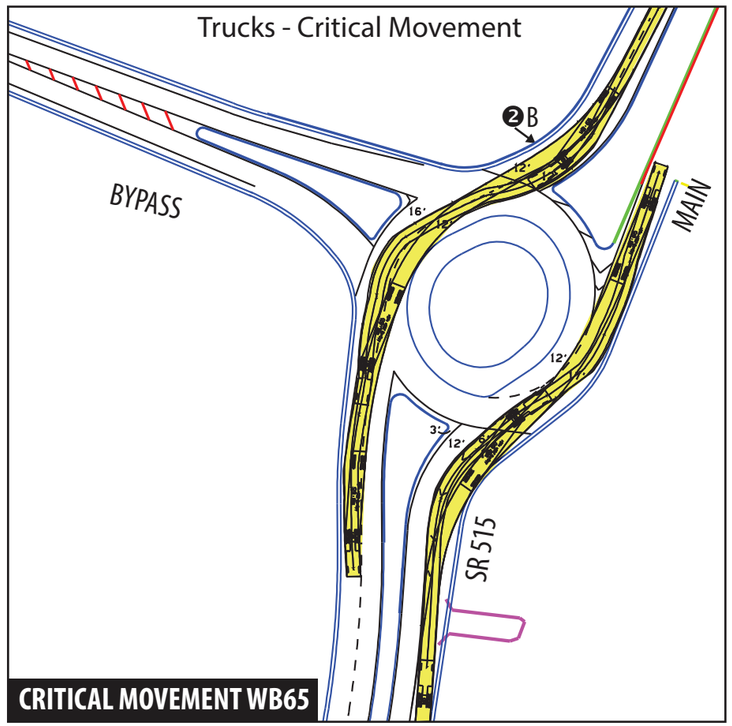

Comments

❶ - Meets fast path criteria
❷A - WB65 stays in lane for NB LT and NB Turn (2-lane approach, 2-lane entry)
❷B - WB65 utilizes whole entry width (1-lane approach, flared 2-lane entry)

SR 515 CORRIDOR (YOUNG HARRIS BY-PASS)
YOUNG HARRIS, GA

MTJ CORRECTIVE REDESIGN-SOUTH ROUNDABOUT-DESIGN CHECKS
9.3.2015

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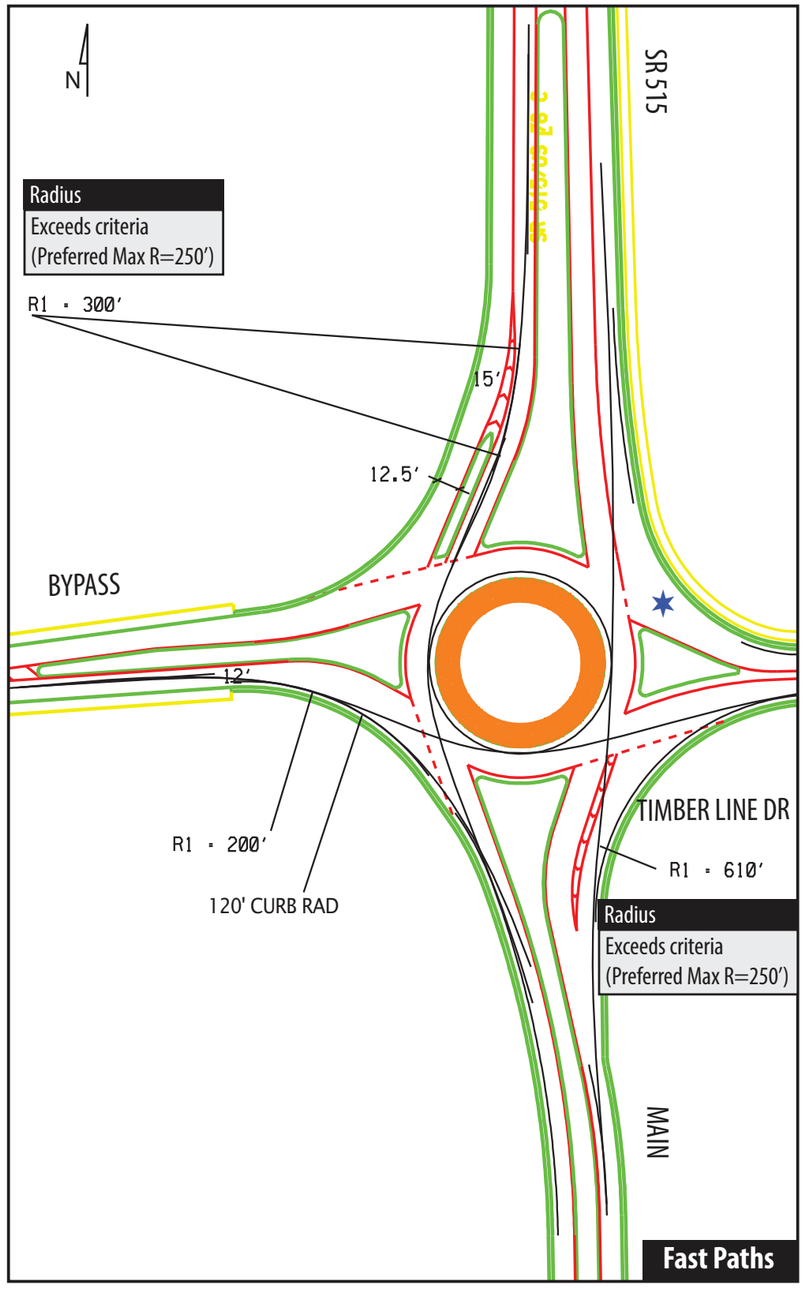

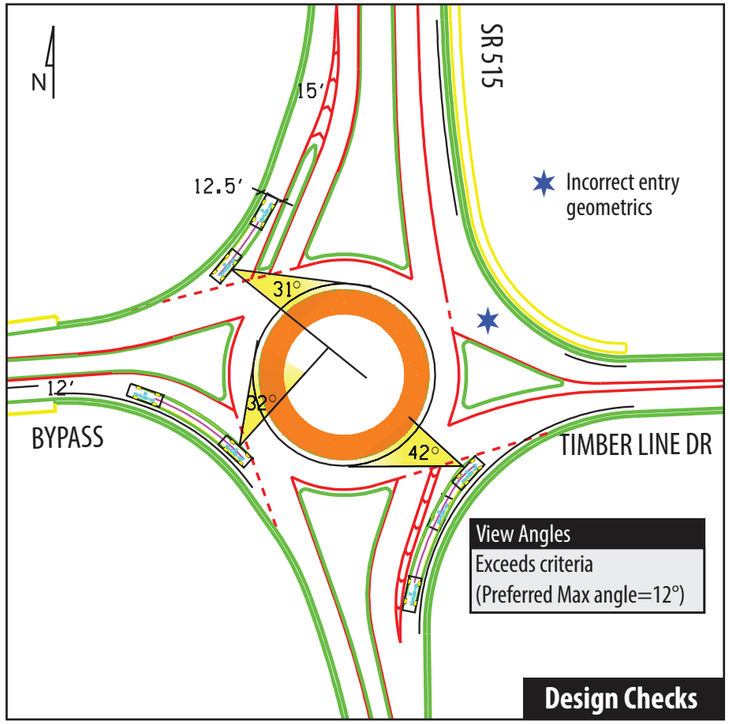

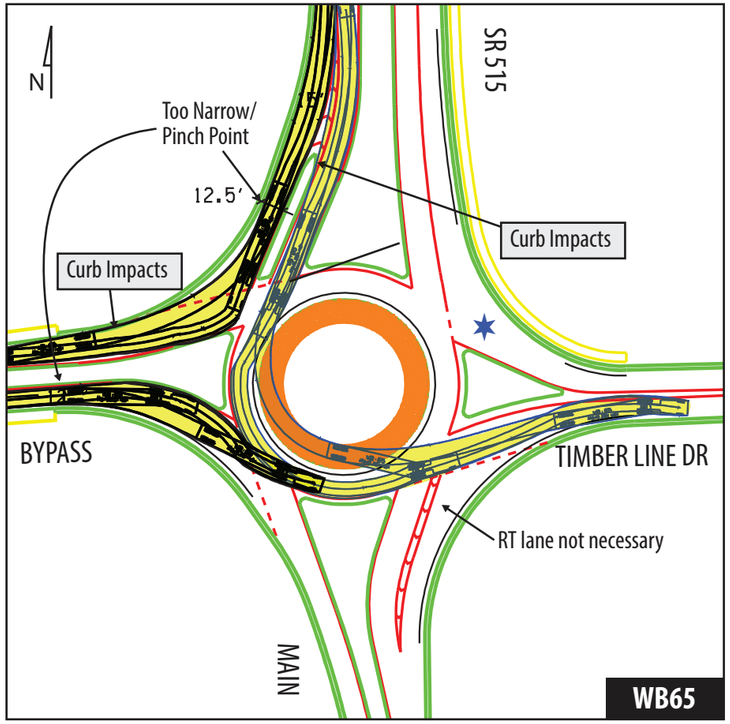

Review Comments

- The Fast Path analysis finds that the NB and SB approaches are not at recommended values (as per NCHRP 672).
- The View Angle analysis indicated geometric modifications are necessary to improve this angle to recommended values.
- Truck movement analysis shows geometric modifications are necessary to improve large truck movement accommodations.

Operational Analysis

- NB operates acceptable as a single lane / NB RT lane not neccesary.
- WB/East leg entry has incorrect geometrics / Free flow RT lane not necessary.

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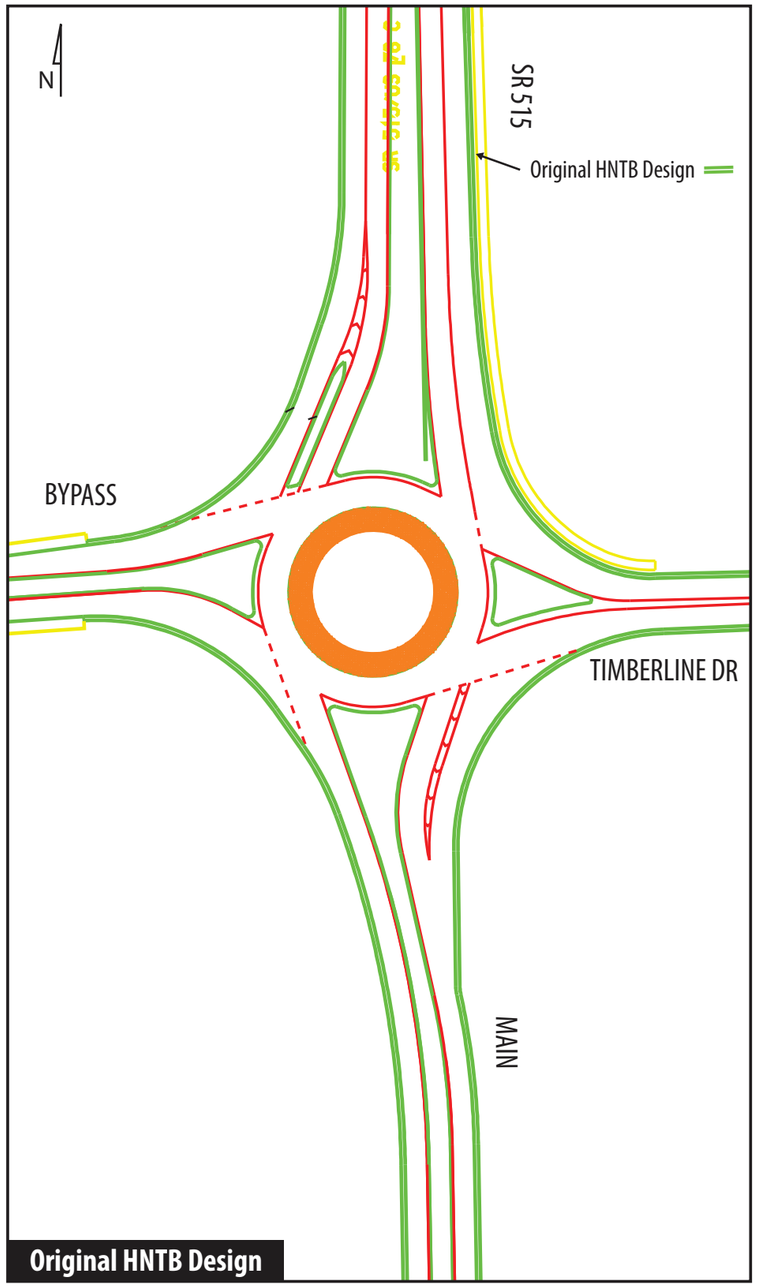
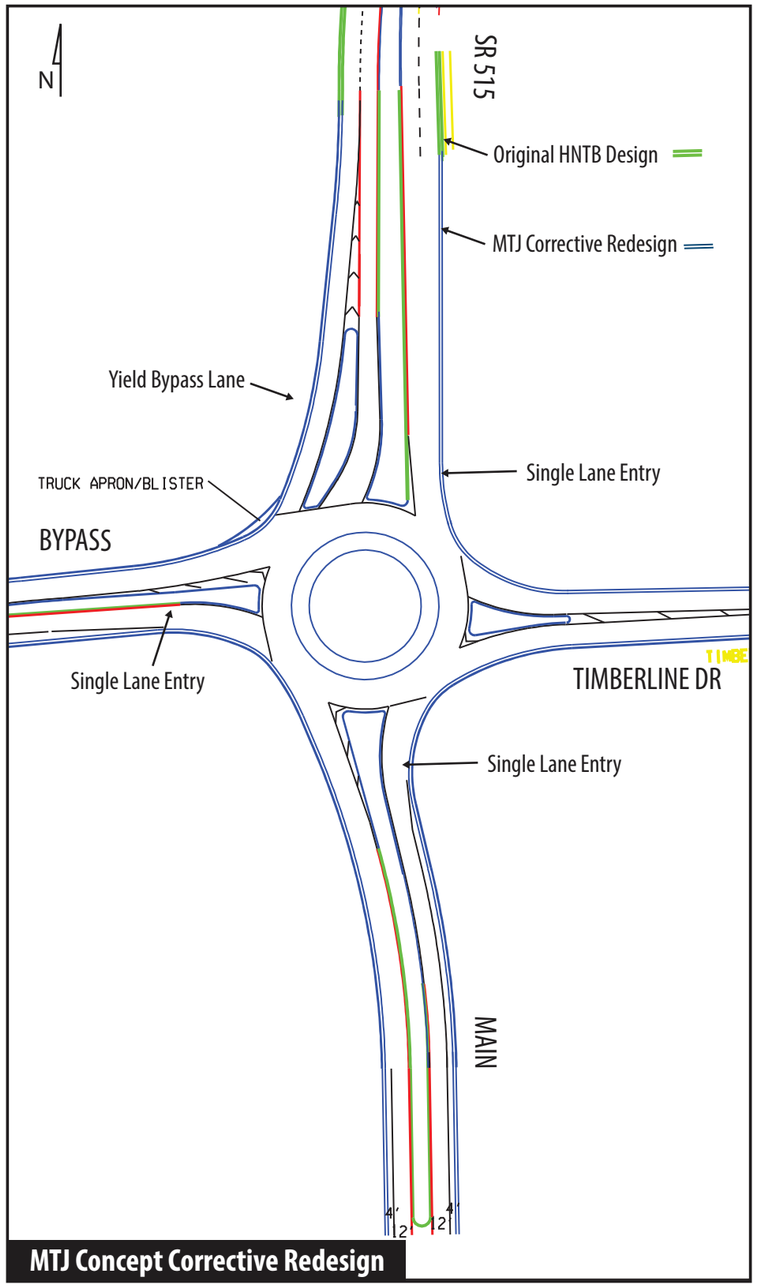
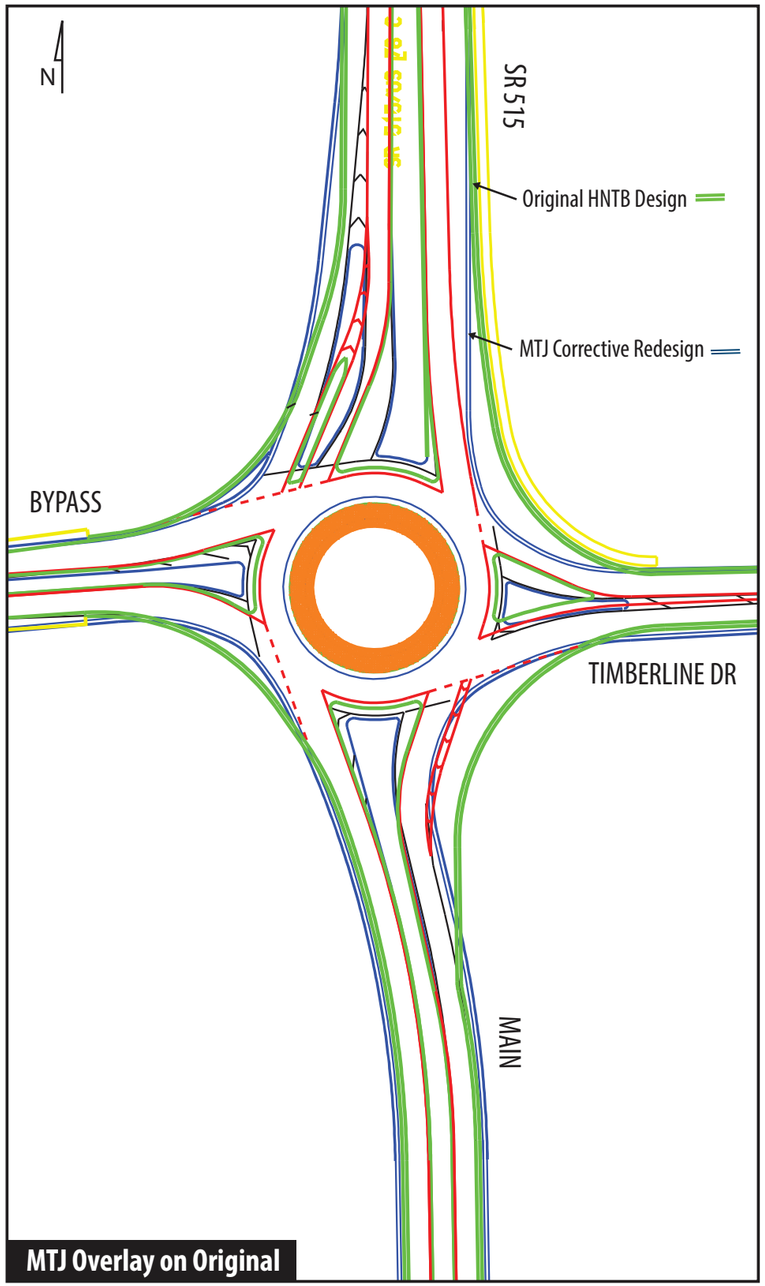


Original HNTB Design



MTJ Concept Corrective Redesign



MTJ Overlay on Original

SR 515 CORRIDOR (YOUNG HARRIS BY-PASS)
YOUNG HARRIS, GA

MTJ CORRECTIVE REDESIGN - NORTH ROUNDABOUT
9.3.2015

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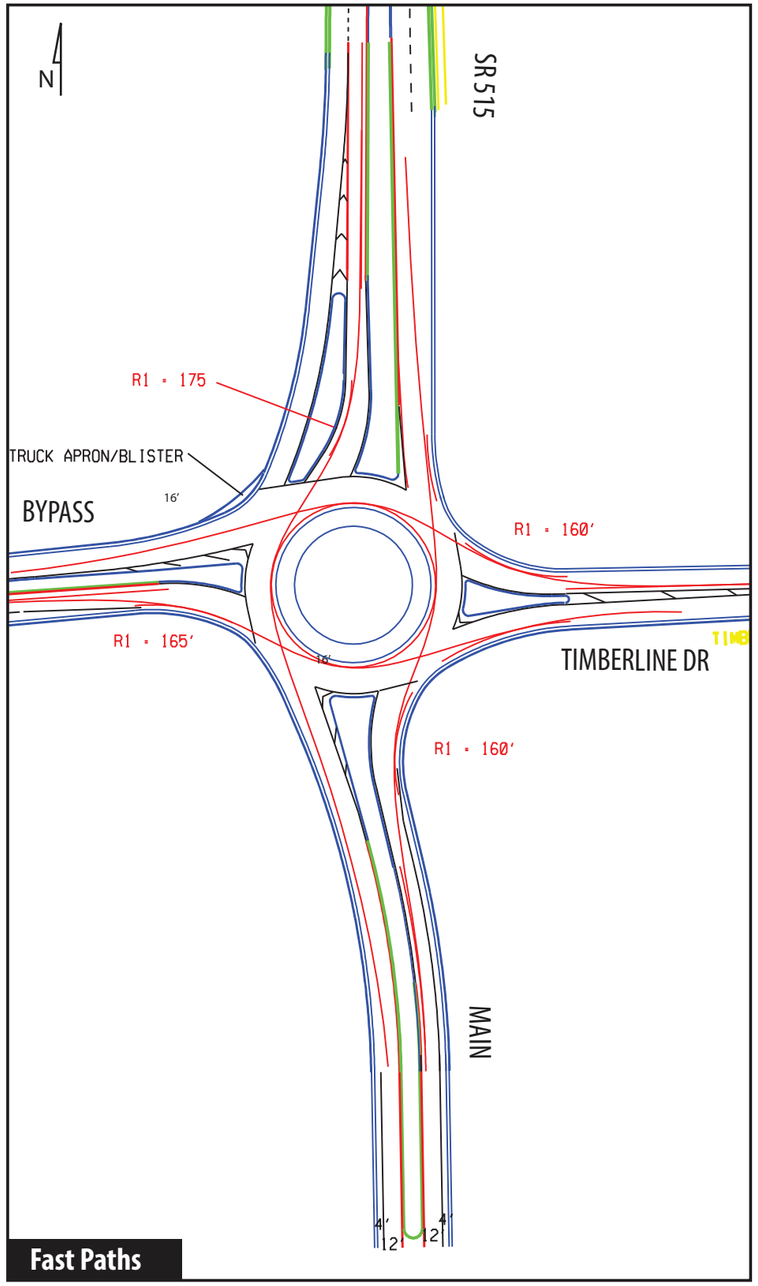
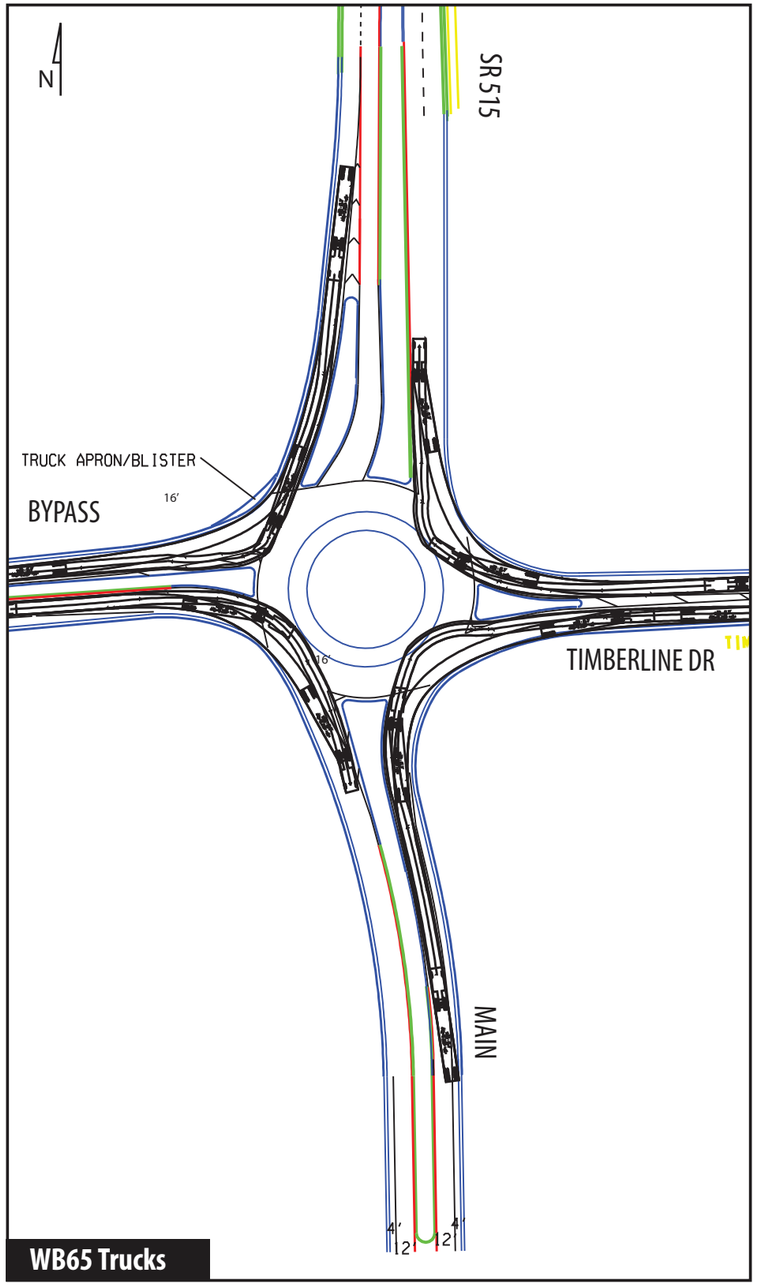
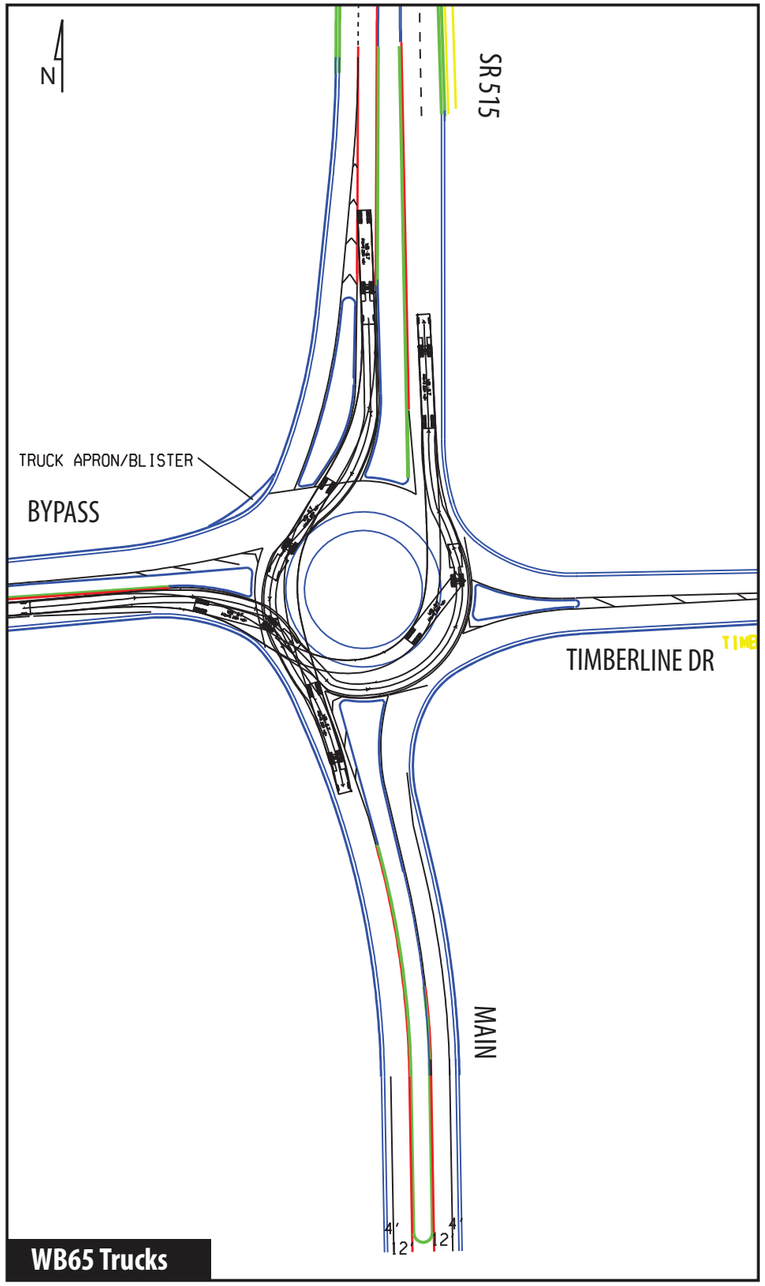


Fast Paths



WB65 Trucks



WB65 Trucks

SR 515 CORRIDOR (YOUNG HARRIS BY-PASS)
YOUNG HARRIS, GA

MTJ CORRECTIVE REDESIGN - NORTH ROUNDABOUT
DESIGN CHECKS
9.3.2015

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CONCEPT REPORT

ATTACHMENT 8

S I & A REPORTS

Processed Date:11/2/2015

Parameters: Bridge Serial Num

Bridge Inventory Data Listing

Structure ID:281-0001-0 **Towns** **SUFF. RATING: 49.20**

Location & Geography

Structure ID:	281-0001-0
200 Brdge Information:	07
*6A Feature Int: *6B Critical Bridge:	BRASSTOWN CREEK TRIB
*7A Route No Carried:	SR00002
*7B Facility Carried:	US 76- SR 515
9 Location:	1 MI S OF YOUNG HARRIS
2 Dot District:	4841100000 - D1 DISTRICT ONE GAINESVILLE
207 Year Photo:	2012
*91 Inspection Frequency:	24 Date: 05/07/2014
92A Fract Crit Insp Freq:	0 Date: 02/01/1901
92B Underwater Insp Freq:	00 Date: 02/01/1901
92C Other Spc. Insp Freq:	00 Date: 02/01/1901
* 4 Place Code:	00000
*5 Inventory Route(O/U):	1
Type:	2 - U.S. Numbered
Designation:	1- Mainline
Number:	00076
Direction:	0. Not applicable
*16 Latitude:	34.0000- 55.2264 HMMS Prefix:SR
*17 Longtitude:	83.0000- 51.3186 HMMS Suffix:00
	MP: 0.87
98 Border Bridge:	% Shared:00
99 ID Number:	000000000000000
*100 STRAHNET:	0- The Feature is not a STRAHNET route.
12 Base Highway Network:	1
13A LRS Inventory Route:	2811051500
13B Sub Inventory Route:	0.00
*101 Parallel Structure:	N. No parallel structure exists
*102 Direction of Traffic:	2- Two Way
*264 Road Inventory Mile Post:	000.72
*208 Inspection Area:	Area 01 Initials: JBC
Engineer's Initials:	sgm
* Location ID No:	281-00002D-000.87E

*104 Highway System:	1-Inventory Route is on the NHS
*26 Functional Classification:	2- Rural - Principal Arterial - Other
*204 Federal Route Type:	F - Primary. No: 00562
105 Federal Lands Highway:	0. Not applicable
*110 Truck Route:	0
206 School Bus Route:	1
217 Benchmark Elevation:	0000.00
218 Datum:	0- Not Applicable
*19 Bypass Length:	5
*20 Toll:	3- On a Free Road or Non-Highway
*21 Maintanance:	01-State Highway Agency.
*22 Owner:	01-State Highway Agency.
*31 Design Load:	2- H 15
37 Historical Significance:	5- Not eligible for the National Register of Historic Places
205 Congressional District:	10 - TEN
27 Year Constructed:	1933
106 Year Reconsrtucted:	1958
33 Bridge Median	0-None
34 Skew:	0
35 Structure Flared:	No
38 Navigation Control:	0- Navigation is not controlled by an Agency
213 Special Steel Design:	0- Not applicable or other
267 Type of Paint:	0- Not Applicable.
*42 Type of Service On:	1-Highway
Type of Service Under:	5-Waterway
214 Movable Bridge:	0
203 Type Bridge:	Q - Reinf - - -
259 Pile Encasement	3
*43 Structure Type Main:	1-Concrete 19- Culvert
45 No.Spans Main:	2
44 Structure Type Appr:	0- Other 0- Other
46 No Spans Appr:	0
226 Bridge Curve Horz	0 Vert: 0.00
111 Pier Protection	N - Navigation Control item coded 0, or Feature not a waterway
107 Deck Structure Type:	N - None
108 Wearing Structure Type:	N. Not applicable
Membrane Type:	N. Not applicable
Deck Protection:	N. Not applicable

Signs & Attachments

225 Expansion Joint Type:	00- No expansion joint.
242 Deck Drains:	0- None.
243 Parapet Location:	0- None present.
Height:	0.00
Width:	0.00
238 Curb Height:	0
Curb Material:	0- None.
239 Handrail	0- None. 0- None.
*240 Median Barrier Rail:	0- None.
241 Bridge Median Height:	0
* Bridge Median Width:	0
230 Guardrail Loc. Dir. Rear:	6- Both sides, approach and continuous.
Fwrd:	6- Both sides, approach and continuous.
Oppo. Dir. Rear:	0- None.
Oppo. Fwrd:	0- None.
244 Aproach Slab	0- None.
224 Retaining Wall:	0- None.
233Posted Speed Limit:	45
236 Warning Sign:	0.00
234 Delineator:	0.00
235 Hazard Boards:	0
237 Utilities Gas:	00- Not Applicable
Water:	00- Not Applicable
Electric:	00- Not Applicable
Telephone:	00- Not Applicable
Sewer:	00- Not Applicable
247 Lighting Street:	0
Navigation:	0
Aerial:	0- Not a
*248 County Continuity No.:	08

Bridge Inventory Data Listing

Structure ID:281-0001-0

Programming Data

201 Project No: F-058-1 (7)
202 Plans Available: 1- Plans at General Office.
249 Prop Proj No: 000000000000000000000000
250 Approval Status: 0000
251 PI Number: 0000000
252 Contract Date: 02/01/1901
260 Seismic No: 00000
75 Type Work: 0- Not Applicable 0- Initial Inventory
94 Bridge Imp: Cost: $104
95 Roadway Imp. Cost: $10
96 Total Imp Cost: $157
76 Imp Length: 0
97 Imp Year: 2013
114 Furure ADT: 15135 Year:2031

Hydralic Data

215Waterway Data:
High Water Elev: 0000.0 Year:1900
Flood Elev: 0000.0 Freq:000
Avg Streambed Elev: 0000.0
Drainage Area: 00000
Area of Opening: 000120
113 Scour Critical 8. Foundation stable for conditions; scour above footing
216 Water Depth: 02.2 Br.Height:09.0
222 Slope Protection: 0
221Spur Dikes Rear 0 Fwd:0
219 Fender System 0- None.
220 Dolphin:
223 Culvert Cover: 8
Type: 1- Concrete.
No. Barrels: 2
Width: 10.00 Height:6
Length: 85 Apron:1
*265 U/W Insp. Area 0 Diver:ZZZ
*Location ID No: 281-00002D-000.87E

Measurements:

*29 ADT 10090Year:2011
109 %Trucks: 9
* 28 Lanes On: 3 Under:0
210 No. Tracks On: 00 Under:00
* 48 Max. Span Length 10
* 49 Structure Length: 21
51 Br. Rwdy. Width 0.00
52 Deck Width: 0.00
* 47 Tot. Horiz. Cl: 54

50 Curb / Sidewalk Width 0.00 / 0.00
32 Approach Rdwy. Width 38
*229 Shoulder Width:
Rear Lt: 8.10 Type:8 - Rt:7
Fwd. Lt: 8.40 Type:5 - Rt:9

Pavement Width:
Rear: 42.30 Type: 2- Asphalt.
37.50 Type: 2- Asphalt.
Intersaction Rear: 1 Fwd: 1
36Safety Features Br. Rail: 1- Meets current standards
Transition: 1- Meets current standards
App. G. Rail: 1- Meets current standards
App. Rail End: 1- Meets current standards
53 Minimum Cl. Over: 99'99"
Under: N- Feature not a highway or railroad. 0.00'0.00"
*228 Minimum Vertical Cl
Act. Odm Dir:: 99 ' 99"
Oppo. Dir: 99' 99"
Posted Odm. Dir: 00' 00"
Oppo. Dir: 00'00 "
55 Lateral Undercl. Rt: N- Feature not a highway or railroad. 0.00
56 Lateral Undercl. Lt: 0.00
*10 Max Min Vert Cl: 99' 99" Dir:0
39 Nav Vert Cl: 000 Horiz:0
116 Nav Vert Cl Closed: 000
245 Deck Thickness Main 0.00
Deck Thick Approach: 0.00
246 Overlay Thickness: 0.00

212 Year Last Painted: Sup:0000 Sub:0000

65 Inventory Rating Method: 0-Field Eval and Documented Eng Judgement
63 Operating Rating Method: 0-Field Eval and Documented Eng Judgement
66 Inventory Type: 2 - HS loading. Rating: 21
64 Operating Type: 2 - HS loading. Rating: 35
231Calculated Loads:
H-Modified: 00 0
HS-Modified: 00 0
Type 3: 00 0
Type 3s2: 00 0
Timber: 00 0
Piggyback: 00 0
261 H Inventory Rating: 15
262 H Operating Rating 25
67 Structural Evaluation: 4
58 Deck Condition: N - Not Applicable
59 Superstructure Condition: N - Not Applicable
* 227 Collision Damage:
60A Substructure Condition: N - Not Applicable
60B Scour Condition: 5 - Fair Condition
60C Underwater Condition N - Not Applicable
71 Waterway Adequacy: 9-Superior to present desirable criteria.
61 Channel Protection Cond.: 7
68 Deck Geometry: N
69 UnderClr. Horz/Vert: N
72 Appr. Alignment: 8-No reduction of vehicle operating speed required.
62 Culvert: 5 - Fair Condition

Posting Data

70 Bridge Posting Required 5. Equal to or above legal loads
41 Struct Open, Posted, CL: A. Open, no restriction
* 103 Temporary Structure: 0
232 Posted Loads
H-Modified: 00
HS-Modified: 00
Type 3: 00
Type 3s2: 00
Timber: 00
Piggyback 00
253 Notification Date: 02/01/1901
258 Fed Notify Date: 02/01/1901

Processed Date:11/2/2015

Parameters: Bridge Serial Num

Bridge Inventory Data Listing

Structure ID:291-0006-0 **Union** **SUFF. RATING: 71.60**

Location & Geography

Structure ID:	291-0006-0
200 Brdge Information:	04
*6A Feature Int: *6B Critical Bridge:	BUTTERNUT CREEK
*7A Route No Carried:	SR00515
*7B Facility Carried:	US 76- SR 2
9 Location:	1.5 MI NE OF BLAIRSVILLE
2 Dot District:	4841100000 - D1 DISTRICT ONE GAINESVILLE
207 Year Photo:	2014
*91 Inspection Frequency:	24 Date: 01/31/2014
92A Fract Crit Insp Freq:	0 Date: 02/01/1901
92B Underwater Insp Freq:	00 Date: 02/01/1901
92C Other Spc. Insp Freq:	00 Date: 02/01/1901
* 4 Place Code:	00000
*5 Inventory Route(O/U):	1
Type:	2 - U.S. Numbered
Designation:	1- Mainline
Number:	00076
Direction:	0. Not applicable
*16 Latitude:	34.0000- 53.4168 HMMS Prefix:SR
*17 Longtitude:	83.0000- 56.3046 HMMS Suffix:00
	MP: 10.94
98 Border Bridge:	% Shared:00
99 ID Number:	000000000000000
*100 STRAHNET:	0- The Feature is not a STRAHNET route.
12 Base Highway Network:	1
13A LRS Inventory Route:	2911051500
13B Sub Inventory Route:	0.00
*101 Parallel Structure:	N. No parallel structure exists
*102 Direction of Traffic:	2- Two Way
*264 Road Inventory Mile Post:	010.94
*208 Inspection Area:	Area 01 Initials: JBC
Engineer's Initials:	kms
* Location ID No:	291-00515D-010.94N

*104 Highway System:	1-Inventory Route is on the NHS
*26 Functional Classification:	2- Rural - Principal Arterial - Other
*204 Federal Route Type:	F - Primary. No: 00562
105 Federal Lands Highway:	0. Not applicable
*110 Truck Route:	0
206 School Bus Route:	1
217 Benchmark Elevation:	0000.00
218 Datum:	0- Not Applicable
*19 Bypass Length:	6
*20 Toll:	3- On a Free Road or Non-Highway
*21 Maintanance:	01-State Highway Agency.
*22 Owner:	01-State Highway Agency.
*31 Design Load:	2- H 15
37 Historical Significance:	5- Not eligible for the National Register of Historic Places
205 Congressional District:	9 - NINE
27 Year Constructed:	1926
106 Year Reconsrtucted:	1989
33 Bridge Median	0-None
34 Skew:	0
35 Structure Flared:	No
38 Navigation Control:	0- Navigation is not controlled by an Agency
213 Special Steel Design:	0- Not applicable or other
267 Type of Paint:	0- Not Applicable.
*42 Type of Service On:	1-Highway
Type of Service Under:	5-Waterway
214 Movable Bridge:	0
203 Type Bridge:	Q - Reinf - - -
259 Pile Encasement	3
*43 Structure Type Main:	1-Concrete 19- Culvert
45 No.Spans Main:	3
44 Structure Type Appr:	0- Other 0- Other
46 No Spans Appr:	0
226 Bridge Curve Horz	0 Vert: 0.00
111 Pier Protection	N - Navigation Control item coded 0, or Feature not a waterway
107 Deck Structure Type:	N - None
108 Wearing Structure Type:	N. Not applicable
Membrane Type:	N. Not applicable
Deck Protection:	N. Not applicable

Signs & Attachments

225 Expansion Joint Type:	00- No expansion joint.
242 Deck Drains:	0- None.
243 Parapet Location:	0- None present.
Height:	0.00
Width:	0.00
238 Curb Height:	0
Curb Material:	0- None.
239 Handrail	0- None. 0- None.
*240 Median Barrier Rail:	0- None.
241 Bridge Median Height:	0
* Bridge Median Width:	0
230 Guardrail Loc. Dir. Rear:	6- Both sides, approach and continuous.
Fwrd:	6- Both sides, approach and continuous.
Oppo. Dir. Rear:	0- None.
Oppo. Fwrd:	0- None.
244 Aproach Slab	0- None.
224 Retaining Wall:	0- None.
233Posted Speed Limit:	55
236 Warning Sign:	0.00
234 Delineator:	1.00
235 Hazard Boards:	0
237 Utilities Gas:	00- Not Applicable
Water:	00- Not Applicable
Electric:	00- Not Applicable
Telephone:	00- Not Applicable
Sewer:	00- Not Applicable
247 Lighting Street:	0
Navigation:	0
Aerial:	0- Not a
*248 County Continuity No.:	07

Bridge Inventory Data Listing

Structure ID:291-0006-0

Programming Data

201 Project No: UNKNOWN
202 Plans Available: 0- No Plans Available.
249 Prop Proj No: 000000000000000000000000
250 Approval Status: 0000
251 PI Number: 0000000
252 Contract Date: 02/01/1901
260 Seismic No: 00000
75 Type Work: 0- Not Applicable 0- Initial Inventory
94 Bridge Imp: Cost: $159
95 Roadway Imp. Cost: $16
96 Total Imp Cost: $239
76 Imp Length: 0
97 Imp Year: 2013
114 Furure ADT: 15450 Year:2032

Hydralic Data

215Waterway Data:
High Water Elev: 0000.0 Year:1900
Flood Elev: 0000.0 Freq:00
Avg Streambed Elev: 0000.0
Drainage Area: 00000
Area of Opening: 000240
113 Scour Critical 8. Foundation stable for conditions; scour above footing
216 Water Depth: 02.1 Br.Height:07.7
222 Slope Protection: 0
221Spur Dikes Rear 0 Fwd:0
219 Fender System 0- None.
220 Dolphin:
223 Culvert Cover: 6
Type: 1- Concrete.
No. Barrels: 3
Width: 10.00 Height:8
Length: 72 Apron:1
*265 U/W Insp. Area 0 Diver:ZZZ
*Location ID No: 291-00515D-010.94N

Measurements:

*29 ADT 10300Year:2012
109 %Trucks: 1
* 28 Lanes On: 3 Under:0
210 No. Tracks On: 00 Under:00
* 48 Max. Span Length 10
* 49 Structure Length: 32
51 Br. Rwdy. Width 0.00
52 Deck Width: 0.00
* 47 Tot. Horiz. Cl: 51

50 Curb / Sidewalk Width 0.00 / 0.00
32 Approach Rdwy. Width 37
*229 Shoulder Width:
Rear Lt: 8.20 Type:8 - Rt:6
Fwd. Lt: 8.20 Type:8 - Grass Rt:9

Pavement Width:
Rear: 36.70 Type: 2- Asphalt.
36.70 Type: 2- Asphalt.
Intersaction Rear: 0 Fwd: 1
36Safety Features Br. Rail: 1- Meets current standards
Transition: 1- Meets current standards
App. G. Rail: 1- Meets current standards
App. Rail End: 1- Meets current standards
53 Minimum Cl. Over: 99'99"
Under: N- Feature not a highway or railroad. 0.00'0.00"
*228 Minimum Vertical Cl
Act. Odm Dir:: 99 ' 99"
Oppo. Dir: 99' 99"
Posted Odm. Dir: 00' 00"
Oppo. Dir: 00'00 "
55 Lateral Undercl. Rt: N- Feature not a highway or railroad. 0.00
56 Lateral Undercl. Lt: 0.00
*10 Max Min Vert Cl: 99' 99" Dir:0
39 Nav Vert Cl: 000 Horiz:0
116 Nav Vert Cl Closed: 000
245 Deck Thickness Main 0.00
Deck Thick Approach: 0.00
246 Overlay Thickness: 0.00

212 Year Last Painted: Sup:0000 Sub:0000

65 Inventory Rating Method: 0-Field Eval and Documented Eng Judgement
63 Operating Rating Method: 0-Field Eval and Documented Eng Judgement
66 Inventory Type: 2 - HS loading. Rating: 27
64 Operating Type: 2 - HS loading. Rating: 46
231Calculated Loads:
H-Modified: 00 0
HS-Modified: 00 0
Type 3: 00 0
Type 3s2: 00 0
Timber: 00 0
Piggyback: 00 0
261 H Inventory Rating: 15
262 H Operating Rating 25
67 Structural Evaluation: 6
58 Deck Condition: N - Not Applicable
59 Superstructure Condition: N - Not Applicable
* 227 Collision Damage: 0
60A Substructure Condition: N - Not Applicable
60B Scour Condition: 6 - Satisfactory Condition
60C Underwater Condition N - Not Applicable
71 Waterway Adequacy: 9-Superior to present desirable criteria.
61 Channel Protection Cond.: 7
68 Deck Geometry: N
69 UnderClr. Horz/Vert: N
72 Appr. Alignment: 8-No reduction of vehicle operating speed required.
62 Culvert: 7 - Good Condition

Posting Data

70 Bridge Posting Required 5. Equal to or above legal loads
41 Struct Open, Posted, CL: A. Open, no restriction
* 103 Temporary Structure: 0
232 Posted Loads
H-Modified: 00
HS-Modified: 00
Type 3: 00
Type 3s2: 00
Timber: 00
Piggyback 00
253 Notification Date: 02/01/1901
258 Fed Notify Date: 02/01/1901

Processed Date:11/2/2015

Parameters: Bridge Serial Num

Bridge Inventory Data Listing

Structure ID:291-0007-0 **Union** **SUFF. RATING: 76.70**

Location & Geography

Structure ID:	291-0007-0
200 Brdge Information:	06
*6A Feature Int: *6B Critical Bridge:	BRASSTOWN CREEK
*7A Route No Carried:	SR00515
*7B Facility Carried:	US 76- SR 2
9 Location:	5.9 MI NE OF BLAIRSVILLE
2 Dot District:	4841100000 - D1 DISTRICT ONE GAINESVILLE
207 Year Photo:	2014
*91 Inspection Frequency:	24 Date: 01/28/2014
92A Fract Crit Insp Freq:	0 Date: 02/01/1901
92B Underwater Insp Freq:	00 Date: 02/01/1901
92C Other Spc. Insp Freq:	00 Date: 02/01/1901
* 4 Place Code:	00000
*5 Inventory Route(O/U):	1
Type:	2 - U.S. Numbered
Designation:	1- Mainline
Number:	00076
Direction:	0. Not applicable
*16 Latitude:	34.0000- 54.6942 HMMS Prefix:SR
*17 Longtitude:	83.0000- 51.9156 HMMS Suffix:00
	MP: 15.59
98 Border Bridge:	% Shared:00
99 ID Number:	000000000000000
*100 STRAHNET:	0- The Feature is not a STRAHNET route.
12 Base Highway Network:	1
13A LRS Inventory Route:	2911051500
13B Sub Inventory Route:	0.00
*101 Parallel Structure:	N. No parallel structure exists
*102 Direction of Traffic:	2- Two Way
*264 Road Inventory Mile Post:	015.59
*208 Inspection Area:	Area 01 Initials: JBC
Engineer's Initials:	kms
* Location ID No:	291-00515D-015.59N

*104 Highway System:	1-Inventory Route is on the NHS
*26 Functional Classification:	2- Rural - Principal Arterial - Other
*204 Federal Route Type:	F - Primary. No: 00562
105 Federal Lands Highway:	0. Not applicable
*110 Truck Route:	0
206 School Bus Route:	0
217 Benchmark Elevation:	0000.00
218 Datum:	0- Not Applicable
*19 Bypass Length:	10
*20 Toll:	3- On a Free Road or Non-Highway
*21 Maintanance:	01-State Highway Agency.
*22 Owner:	01-State Highway Agency.
*31 Design Load:	4- H 20
37 Historical Significance:	5- Not eligible for the National Register of Historic Places
205 Congressional District:	9 - NINE
27 Year Constructed:	1958
106 Year Reconsrtucted:	1988
33 Bridge Median	0-None
34 Skew:	20
35 Structure Flared:	No
38 Navigation Control:	0- Navigation is not controlled by an Agency
213 Special Steel Design:	0- Not applicable or other
267 Type of Paint:	0- Not Applicable.
*42 Type of Service On:	1-Highway
Type of Service Under:	5-Waterway
214 Movable Bridge:	0
203 Type Bridge:	A- Spread - O. Concrete O. Concrete - O. Concrete
259 Pile Encasement	3
*43 Structure Type Main:	1-Concrete 4-Tee Beam
45 No.Spans Main:	3
44 Structure Type Appr:	0- Other 0- Other
46 No Spans Appr:	0
226 Bridge Curve Horz	1 Vert: 0.00
111 Pier Protection	N - Navigation Control item coded 0, or Feature not a waterway
107 Deck Structure Type:	
108 Wearing Structure Type:	
Membrane Type:	
Deck Protection:	

Signs & Attachments

225 Expansion Joint Type:	02- Open or sealed concrete joint (silicone sealant).
242 Deck Drains:	1- Open Scuppers.
243 Parapet Location:	0- None present.
Height:	0.00
Width:	0.00
238 Curb Height:	0
Curb Material:	0- None.
239 Handrail	9- Concrete New Jersey Type Barrier 9- Concrete New Jersey
*240 Median Barrier Rail:	0- None.
241 Bridge Median Height:	0
* Bridge Median Width:	0
230 Guardrail Loc. Dir. Rear:	6- Both sides, approach and continuous.
Fwrd:	6- Both sides, approach and continuous.
Oppo. Dir. Rear:	0- None.
Oppo. Fwrd:	0- None.
244 Aproach Slab	3- Forward and Rear.
224 Retaining Wall:	0- None.
233Posted Speed Limit:	55
236 Warning Sign:	0.00
234 Delineator:	0.00
235 Hazard Boards:	0
237 Utilities Gas:	00- Not Applicable
Water:	00- Not Applicable
Electric:	00- Not Applicable
Telephone:	21- Bottom Left.
Sewer:	00- Not Applicable
247 Lighting Street:	0
Navigation:	0
Aerial:	0- Not a
*248 County Continuity No.:	07

Bridge Inventory Data Listing

Structure ID:291-0007-0

Programming Data

201 Project No: MLP-2 (71)
202 Plans Available: 4- Plans in InfoImage.
249 Prop Proj No: 000000000000000000000000
250 Approval Status: 0000
251 PI Number: 0000000
252 Contract Date: 02/01/1901
260 Seismic No: 00007
75 Type Work: 0- Not Applicable 0- Initial Inventory
94 Bridge Imp: Cost: $567
95 Roadway Imp. Cost: $57
96 Total Imp Cost: $850
76 Imp Length: 0
97 Imp Year: 2013
114 Furure ADT: 15450 Year:2032

Hydralic Data

215Waterway Data:
High Water Elev: 0000.0 Year:1900
Flood Elev: 0000.0 Freq:00
Avg Streambed Elev: 0000.0
Drainage Area: 00000
Area of Opening: 000000
113 Scour Critical U. No Load Rating; no scour critical data entered.
216 Water Depth: 1.1 Br.Height:16.6
222 Slope Protection: 1
221Spur Dikes Rear 0 Fwd:0
219 Fender System 0- None.
220 Dolphin:
223 Culvert Cover: 000
Type: 0- Not Applicable
No. Barrels: 0
Width: 0.00 Height:0
Length: 0 Apron:0
*265 U/W Insp. Area 0 Diver:ZZZ
*Location ID No: 291-00515D-015.59N

Measurements:

*29 ADT 10300Year:2012
109 %Trucks: 1
* 28 Lanes On: 3 Under:0
210 No. Tracks On: 00 Under:00
* 48 Max. Span Length 38
* 49 Structure Length: 114
51 Br. Rwdy. Width 55.80
52 Deck Width: 59.50
* 47 Tot. Horiz. Cl: 56

50 Curb / Sidewalk Width 0.00 / 0.00
32 Approach Rdwy. Width 36
*229 Shoulder Width:
Rear Lt: 7.00 Type:8 - Rt:7
Fwd. Lt: 7.00 Type:8 - Grass Rt:7

Pavement Width:
Rear: 36.20 Type: 2- Asphalt.
36.20 Type: 2- Asphalt.
Intersaction Rear: 1 Fwd: 0
36Safety Features Br. Rail: 1- Meets current standards
Transition: 2- Inspected feature meets acceptable construction date standards.
App. G. Rail: 1- Meets current standards
App. Rail End: 1- Meets current standards
53 Minimum Cl. Over: 99'99"
Under: N- Feature not a highway or railroad. 0.00'0.00"
*228 Minimum Vertical Cl
Act. Odm Dir:: 99 ' 99"
Oppo. Dir: 99' 99"
Posted Odm. Dir: 00' 00"
Oppo. Dir: 00'00 "
55 Lateral Undercl. Rt: N- Feature not a highway or railroad. 0.00
56 Lateral Undercl. Lt: 0.00
*10 Max Min Vert Cl: 99' 99" Dir:0
39 Nav Vert Cl: 000 Horiz:0
116 Nav Vert Cl Closed: 000
245 Deck Thickness Main 7.00
Deck Thick Approach: 0.00
246 Overlay Thickness: 0.00

212 Year Last Painted: Sup:0000 Sub:0000

65 Inventory Rating Method: 1-Load Factor (LF)
63 Operating Rating Method: 1-Load Factor (LF)
66 Inventory Type: 2 - HS loading. Rating: 23
64 Operating Type: 2 - HS loading. Rating: 39
231Calculated Loads:
H-Modified: 21 0
HS-Modified: 24 0
Type 3: 22 0
Type 3s2: 35 0
Timber: 28 0
Piggyback: 40 0
261 H Inventory Rating: 19
262 H Operating Rating 32
67 Structural Evaluation: 5
58 Deck Condition: 6 - Satisfactory Condition
59 Superstructure Condition: 6 - Satisfactory Condition
* 227 Collision Damage: 0
60A Substructure Condition: 6 - Satisfactory Condition
60B Scour Condition: 6 - Satisfactory Condition
60C Underwater Condition N - Not Applicable
71 Waterway Adequacy: 9-Superior to present desirable criteria.
61 Channel Protection Cond.: 5
68 Deck Geometry: 9
69 UnderClr. Horz/Vert: N
72 Appr. Alignment: 6-Minor reduction of vehicle operating speed required.
62 Culvert: N - Not Applicable

Posting Data

70 Bridge Posting Required 5. Equal to or above legal loads
41 Struct Open, Posted, CL: A. Open, no restriction
* 103 Temporary Structure: 0
232 Posted Loads
H-Modified: 00
HS-Modified: 00
Type 3: 00
Type 3s2: 00
Timber: 00
Piggyback 00
253 Notification Date: 02/01/1901
258 Fed Notify Date: 02/01/1901

Processed Date:11/2/2015

Parameters: Bridge Serial Num

Bridge Inventory Data Listing

Structure ID:291-5004-0 **Union** **SUFF. RATING: 99.00**

Location & Geography

Structure ID:	291-5004-0
200 Brdge Information:	07
*6A Feature Int: *6B Critical Bridge:	BUTTERNUT CREEK
*7A Route No Carried:	CR00023
*7B Facility Carried:	WEAVER ROAD
9 Location:	IN NE BLAIRSVILLE
2 Dot District:	4841100000 - D1 DISTRICT ONE GAINESVILLE
207 Year Photo:	2014
*91 Inspection Frequency:	24 Date: 01/31/2014
92A Fract Crit Insp Freq:	0 Date: 02/01/1901
92B Underwater Insp Freq:	00 Date: 02/01/1901
92C Other Spc. Insp Freq:	00 Date: 02/01/1901
* 4 Place Code:	08480
*5 Inventory Route(O/U):	1
Type:	4 - County
Designation:	1- Mainline
Number:	00023
Direction:	0. Not applicable
*16 Latitude:	34.0000- 52.8870 HMMS Prefix:00
*17 Longtitude:	83.0000- 57.1674 HMMS Suffix:000
	MP: 0.00
98 Border Bridge:	% Shared:00
99 ID Number:	000000000000000
*100 STRAHNET:	0- The Feature is not a STRAHNET route.
12 Base Highway Network:	1
13A LRS Inventory Route:	2913055001
13B Sub Inventory Route:	0.00
*101 Parallel Structure:	N. No parallel structure exists
*102 Direction of Traffic:	2- Two Way
*264 Road Inventory Mile Post:	000.02
*208 Inspection Area:	Area 01 Initials: JBC
Engineer's Initials:	kms
* Location ID No:	291-00023X-000.05N

*104 Highway System:	0- Inventory Route is not on the NHS
*26 Functional Classification:	8- Rural - Minor Collector
*204 Federal Route Type:	0 - Not located on a Federal Aid Route No: 00000
105 Federal Lands Highway:	0. Not applicable
*110 Truck Route:	0
206 School Bus Route:	0
217 Benchmark Elevation:	0000.00
218 Datum:	0- Not Applicable
*19 Bypass Length:	1
*20 Toll:	3- On a Free Road or Non-Highway
*21 Maintanance:	02-County Highway Agency.
*22 Owner:	02-County Highway Agency.
*31 Design Load:	6- HS 20 + Mod (2-24,000# Axles @ 4ft Ctrs., when they govern)
37 Historical Significance:	5- Not eligible for the National Register of Historic Places
205 Congressional District:	9 - NINE
27 Year Constructed:	1974
106 Year Reconsrtucted:	0
33 Bridge Median	0-None
34 Skew:	10
35 Structure Flared:	No
38 Navigation Control:	0- Navigation is not controlled by an Agency
213 Special Steel Design:	0- Not applicable or other
267 Type of Paint:	0- Not Applicable.
*42 Type of Service On:	1-Highway
Type of Service Under:	5-Waterway
214 Movable Bridge:	0
203 Type Bridge:	Q - Reinf - - -
259 Pile Encasement	3
*43 Structure Type Main:	1-Concrete 19- Culvert
45 No.Spans Main:	3
44 Structure Type Appr:	0- Other 0- Other
46 No Spans Appr:	0
226 Bridge Curve Horz	0 Vert: 0.00
111 Pier Protection	N - Navigation Control item coded 0, or Feature not a waterway
107 Deck Structure Type:	N - None
108 Wearing Structure Type:	N. Not applicable
Membrane Type:	N. Not applicable
Deck Protection:	N. Not applicable

Signs & Attachments

225 Expansion Joint Type:	00- No expansion joint.
242 Deck Drains:	0- None.
243 Parapet Location:	0- None present.
Height:	0.00
Width:	0.00
238 Curb Height:	0
Curb Material:	0- None.
239 Handrail	0- None. 0- None.
*240 Median Barrier Rail:	0- None.
241 Bridge Median Height:	0
* Bridge Median Width:	0
230 Guardrail Loc. Dir. Rear:	0- None.
Fwrd:	0- None.
Oppo. Dir. Rear:	0- None.
Oppo. Fwrd:	0- None.
244 Aproach Slab	0- None.
224 Retaining Wall:	0- None.
233Posted Speed Limit:	55
236 Warning Sign:	0.00
234 Delineator:	0.00
235 Hazard Boards:	0
237 Utilities Gas:	00- Not Applicable
Water:	00- Not Applicable
Electric:	00- Not Applicable
Telephone:	00- Not Applicable
Sewer:	00- Not Applicable
247 Lighting Street:	0
Navigation:	0
Aerial:	0- Not a
*248 County Continuity No.:	00

Bridge Inventory Data Listing

Structure ID:291-5004-0

Programming Data

201 Project No: APD-56-2 (5)
202 Plans Available: 0- No Plans Available.
249 Prop Proj No: 000000000000000000000000
250 Approval Status: 0000
251 PI Number: 0000000
252 Contract Date: 02/01/1901
260 Seismic No: 00000
75 Type Work: 0- Not Applicable 0- Initial Inventory
94 Bridge Imp: Cost: $125
95 Roadway Imp. Cost: $13
96 Total Imp Cost: $188
76 Imp Length: 0
97 Imp Year: 2013
114 Furure ADT: 735 Year:2032

Hydralic Data

215Waterway Data:
High Water Elev: 0000.0 Year:1900
Flood Elev: 0000.0 Freq:00
Avg Streambed Elev: 0000.0
Drainage Area: 00000
Area of Opening: 000300
113 Scour Critical 8. Foundation stable for conditions; scour above footing
216 Water Depth: 02.4 Br.Height:07.6
222 Slope Protection: 0
221Spur Dikes Rear 0 Fwd:0
219 Fender System 0- None.
220 Dolphin:
223 Culvert Cover: 3
Type: 1- Concrete.
No. Barrels: 3
Width: 10.00 Height:10
Length: 38 Apron:0
*265 U/W Insp. Area 0 Diver:ZZZ
*Location ID No: 291-00023X-000.05N

Measurements:

*29 ADT 490Year:2012
109 %Trucks: 1
* 28 Lanes On: 2 Under:0
210 No. Tracks On: 00 Under:00
* 48 Max. Span Length 10
* 49 Structure Length: 32
51 Br. Rwdy. Width 0.00
52 Deck Width: 0.00
* 47 Tot. Horiz. Cl: 32

50 Curb / Sidewalk Width 0.00 / 0.00
32 Approach Rdwy. Width 20
*229 Shoulder Width:
Rear Lt: 4.90 Type:8 - Rt:10
Fwd. Lt: 5.40 Type:8 - Grass Rt:7

Pavement Width:
Rear: 20.00 Type: 2- Asphalt.
20.00 Type: 2- Asphalt.
Intersaction Rear: 1 Fwd: 0
36Safety Features Br. Rail: N- Not applicable
Transition: N- Not applicable
App. G. Rail: N- Not applicable
App. Rail End: N- Not applicable
53 Minimum Cl. Over: 99'99"
Under: N- Feature not a highway or railroad. 0.00'0.00"
*228 Minimum Vertical Cl
Act. Odm Dir:: 99 ' 99"
Oppo. Dir: 99' 99"
Posted Odm. Dir: 00' 00"
Oppo. Dir: 00'00 "
55 Lateral Undercl. Rt: N- Feature not a highway or railroad. 0.00
56 Lateral Undercl. Lt: 0.00
*10 Max Min Vert Cl: 99' 99" Dir:0
39 Nav Vert Cl: 000 Horiz:0
116 Nav Vert Cl Closed: 000
245 Deck Thickness Main 0.00
Deck Thick Approach: 0.00
246 Overlay Thickness: 0.00

212 Year Last Painted: Sup:0000 Sub:0000

65 Inventory Rating Method: 0-Field Eval and Documented Eng Judgement
63 Operating Rating Method: 0-Field Eval and Documented Eng Judgement
66 Inventory Type: 2 - HS loading. Rating: 36
64 Operating Type: 2 - HS loading. Rating: 61
231Calculated Loads:
H-Modified: 00 0
HS-Modified: 00 0
Type 3: 00 0
Type 3s2: 00 0
Timber: 00 0
Piggyback: 00 0
261 H Inventory Rating: 20
262 H Operating Rating 34
67 Structural Evaluation: 7
58 Deck Condition: N - Not Applicable
59 Superstructure Condition: N - Not Applicable
* 227 Collision Damage: 0
60A Substructure Condition: N - Not Applicable
60B Scour Condition: 8 - Very Good Condition
60C Underwater Condition N - Not Applicable
71 Waterway Adequacy: 9-Superior to present desirable criteria.
61 Channel Protection Cond.: 7
68 Deck Geometry: N
69 UnderClr. Horz/Vert: N
72 Appr. Alignment: 5-Between 6 and 3
62 Culvert: 7 - Good Condition

Posting Data

70 Bridge Posting Required 5. Equal to or above legal loads
41 Struct Open, Posted, CL: A. Open, no restriction
* 103 Temporary Structure: 0
232 Posted Loads
H-Modified: 00
HS-Modified: 00
Type 3: 00
Type 3s2: 00
Timber: 00
Piggyback 00
253 Notification Date: 02/01/1901
258 Fed Notify Date: 02/01/1901

Processed Date:11/2/2015

Parameters: Bridge Serial Num

Bridge Inventory Data Listing

Structure ID:291-5005-0 **Union** **SUFF. RATING: 92.30**

Location & Geography

Structure ID:	291-5005-0
200 Brdge Information:	07
*6A Feature Int: *6B Critical Bridge:	BUTTERNUT CREEK
*7A Route No Carried:	CR00024
*7B Facility Carried:	MEMORY GARDENS RD
9 Location:	1 MI NE OF BLAIRSVILLE
2 Dot District:	4841100000 - D1 DISTRICT ONE GAINESVILLE
207 Year Photo:	2014
*91 Inspection Frequency:	24 Date: 01/31/2014
92A Fract Crit Insp Freq:	0 Date: 02/01/1901
92B Underwater Insp Freq:	00 Date: 02/01/1901
92C Other Spc. Insp Freq:	00 Date: 02/01/1901
* 4 Place Code:	00000
*5 Inventory Route(O/U):	1
Type:	4 - County
Designation:	1- Mainline
Number:	00024
Direction:	0. Not applicable
*16 Latitude:	34.0000- 53.0544 HMMS Prefix:00
*17 Longtitude:	83.0000- 56.5896 HMMS Suffix:000
	MP: 0.00
98 Border Bridge:	% Shared:00
99 ID Number:	000000000000000
*100 STRAHNET:	0- The Feature is not a STRAHNET route.
12 Base Highway Network:	1
13A LRS Inventory Route:	2912002400
13B Sub Inventory Route:	0.00
*101 Parallel Structure:	N. No parallel structure exists
*102 Direction of Traffic:	2- Two Way
*264 Road Inventory Mile Post:	000.02
*208 Inspection Area:	Area 01 Initials: JBC
Engineer's Initials:	kms
* Location ID No:	291-00024X-000.02N

*104 Highway System:	0- Inventory Route is not on the NHS
*26 Functional Classification:	9- Rural - Local (Including Unclassified)
*204 Federal Route Type:	0 - Not located on a Federal Aid Route No: 00000
105 Federal Lands Highway:	0. Not applicable
*110 Truck Route:	0
206 School Bus Route:	0
217 Benchmark Elevation:	0000.00
218 Datum:	0- Not Applicable
*19 Bypass Length:	4
*20 Toll:	3- On a Free Road or Non-Highway
*21 Maintanance:	02-County Highway Agency.
*22 Owner:	02-County Highway Agency.
*31 Design Load:	2- H 15
37 Historical Significance:	5- Not eligible for the National Register of Historic Places
205 Congressional District:	9 - NINE
27 Year Constructed:	1970
106 Year Reconsrtucted:	0
33 Bridge Median	0-None
34 Skew:	0
35 Structure Flared:	No
38 Navigation Control:	0- Navigation is not controlled by an Agency
213 Special Steel Design:	0- Not applicable or other
267 Type of Paint:	0- Not Applicable.
*42 Type of Service On:	1-Highway
Type of Service Under:	5-Waterway
214 Movable Bridge:	0
203 Type Bridge:	Q - Reinf - - -
259 Pile Encasement	3
*43 Structure Type Main:	1-Concrete 19- Culvert
45 No.Spans Main:	3
44 Structure Type Appr:	0- Other 0- Other
46 No Spans Appr:	0
226 Bridge Curve Horz	0 Vert: 0.00
111 Pier Protection	N - Navigation Control item coded 0, or Feature not a waterway
107 Deck Structure Type:	N - None
108 Wearing Structure Type:	N. Not applicable
Membrane Type:	N. Not applicable
Deck Protection:	N. Not applicable

Signs & Attachments

225 Expansion Joint Type:	00- No expansion joint.	
242 Deck Drains:	0- None.	
243 Parapet Location:	0- None present.	
Height:	0.00	
Width:	0.00	
238 Curb Height:	0	
Curb Material:	0- None.	
239 Handrail	0- None.	0- None.
*240 Median Barrier Rail:	0- None.	
241 Bridge Median Height:	0	
* Bridge Median Width:	0	
230 Guardrail Loc. Dir. Rear:	0- None.	
Fwrd:	0- None.	
Oppo. Dir. Rear:	0- None.	
Oppo. Fwrd:	0- None.	
244 Aproach Slab	0- None.	
224 Retaining Wall:	0- None.	
233Posted Speed Limit:	30	
236 Warning Sign:	0.00	
234 Delineator:	0.00	
235 Hazard Boards:	0	
237 Utilities Gas:	00- Not Applicable	
Water:	00- Not Applicable	
Electric:	00- Not Applicable	
Telephone:	00- Not Applicable	
Sewer:	00- Not Applicable	
247 Lighting Street:	0	
Navigation:	0	
Aerial:	0- Not	
*248 County Continuity No.:	00	

Bridge Inventory Data Listing

Structure ID:291-5005-0

Programming Data

201 Project No: UNKNOWN DESIGN
202 Plans Available: 0- No Plans Available.
249 Prop Proj No: 000000000000000000000000
250 Approval Status: 0000
251 PI Number: 0000000
252 Contract Date: 02/01/1901
260 Seismic No: 00000
75 Type Work: 0- Not Applicable 0- Initial Inventory
94 Bridge Imp: Cost: $125
95 Roadway Imp. Cost: $13
96 Total Imp Cost: $188
76 Imp Length: 0
97 Imp Year: 2013
114 Furure ADT: 735 Year:2032

Hydralic Data

215Waterway Data:
High Water Elev: 0000.0 Year:1900
Flood Elev: 0000.0 Freq:00
Avg Streambed Elev: 0000.0
Drainage Area: 00000
Area of Opening: 000240
113 Scour Critical 8. Foundation stable for conditions; scour above footing
216 Water Depth: 02.2 Br.Height:08.8
222 Slope Protection: 0
221Spur Dikes Rear 0 Fwd:0
219 Fender System 0- None.
220 Dolphin:
223 Culvert Cover: 2
Type: 1- Concrete.
No. Barrels: 3
Width: 10.00 Height:8
Length: 46 Apron:0
*265 U/W Insp. Area 0 Diver:ZZZ
*Location ID No: 291-00024X-000.02N

Measurements:

*29 ADT 490Year:2012
109 %Trucks: 1
* 28 Lanes On: 2 Under:0
210 No. Tracks On: 00 Under:00
* 48 Max. Span Length 10
* 49 Structure Length: 32
51 Br. Rwdy. Width 0.00
52 Deck Width: 0.00
* 47 Tot. Horiz. Cl: 29

50 Curb / Sidewalk Width 0.00 / 0.00
32 Approach Rdwy. Width 21
*229 Shoulder Width:
Rear Lt: 7.50 Type:8 - Rt:5
Fwd. Lt: 3.30 Type:8 - Grass Rt:5

Pavement Width:
Rear: 24.50 Type: 2- Asphalt.
20.90 Type: 2- Asphalt.
Intersaction Rear: 1 Fwd: 0
36Safety Features Br. Rail: N- Not applicable
Transition: N- Not applicable
App. G. Rail: N- Not applicable
App. Rail End: N- Not applicable
53 Minimum Cl. Over: 99'99"
Under: N- Feature not a highway or railroad. 0.00'0.00"
*228 Minimum Vertical Cl
Act. Odm Dir:: 99 ' 99"
Oppo. Dir: 99' 99"
Posted Odm. Dir: 00' 00"
Oppo. Dir: 00'00 "
55 Lateral Undercl. Rt: N- Feature not a highway or railroad. 0.00
56 Lateral Undercl. Lt: 0.00
*10 Max Min Vert Cl: 99' 99" Dir:0
39 Nav Vert Cl: 000 Horiz:0
116 Nav Vert Cl Closed: 000
245 Deck Thickness Main 0.00
Deck Thick Approach: 0.00
246 Overlay Thickness: 0.00

212 Year Last Painted: Sup:0000 Sub:0000

65 Inventory Rating Method: 0-Field Eval and Documented Eng Judgement
63 Operating Rating Method: 0-Field Eval and Documented Eng Judgement
66 Inventory Type: 2 - HS loading. Rating: 27
64 Operating Type: 2 - HS loading. Rating: 46
231Calculated Loads:
H-Modified: 00 0
HS-Modified: 00 0
Type 3: 00 0
Type 3s2: 00 0
Timber: 00 0
Piggyback: 00 0
261 H Inventory Rating: 15
262 H Operating Rating 25
67 Structural Evaluation: 6
58 Deck Condition: N - Not Applicable
59 Superstructure Condition: N - Not Applicable
* 227 Collision Damage: 0
60A Substructure Condition: N - Not Applicable
60B Scour Condition: 5 - Fair Condition
60C Underwater Condition N - Not Applicable
71 Waterway Adequacy: 9-Superior to present desirable criteria.
61 Channel Protection Cond.: 6
68 Deck Geometry: N
69 UnderClr. Horz/Vert: N
72 Appr. Alignment: 7-Between 8 and 6
62 Culvert: 7 - Good Condition

Posting Data

70 Bridge Posting Required 5. Equal to or above legal loads
41 Struct Open, Posted, CL: A. Open, no restriction
* 103 Temporary Structure: 0
232 Posted Loads
H-Modified: 00
HS-Modified: 00
Type 3: 00
Type 3s2: 00
Timber: 00
Piggyback 00
253 Notification Date: 02/01/1901
258 Fed Notify Date: 02/01/1901

CONCEPT REPORT

ATTACHMENT 9

MINUTES OF CONCEPT MEETINGS

CONCEPT TEAM MEETING MINUTES

Widening and Relocation of SR 515 from Blairsville to Young Harris at the Towns County Line

GDOT Project No. - APD00-0056-02(029)
PI No. 122900
HNTB No. 55283

Date: November 30, 2011

Location/Time: GDOT District 1 Office Conference Rm / 9:00 a.m. – 12:00 p.m.

Attendees:

Name	Company/Address	Phone	E-Mail
Steve Adewale	GDOT-OPD	404-631-1578	sadewale@dot.ga.gov
Steve Gafford	GDOT	404-631-1354	sgafford@dot.ga.gov
Dom Saulino	HNTB	404-946-5745	dsaulino@hntb.com
Chris Seckinger	HNTB	404-946-5733	cseckinger@hntb.com
Xuewen le	HNTB	404-946-5741	Xle@hntb.com
Beau Marshall	HNTB	404-946-5746	Bemarshall@hntb.com
Charlotte Weber	HNTB	404-946-5712	Chweber@hntb.com
Anie Bassey	GDOT	404-631-1795	Abassey@dot.ga.gov
Lenor Bromberg	KEA Group	404-805-8244	Lbromberg@Keagroup.com
Kim Coley	GDOT	770-532-5530	Kcoley@dot.ga.gov
Rhunda Brady	GDOT	770-532-5532	Rbrady@dot.ga.gov
Ken Werho	GDOT TO TMC	404-635-8144	Kwerho@dot.ga.gov
Lane G. Bulgin	GDOT-D1-R/W	770-718-5046	Lbulgin@dot.ga.gov
Jonathon Dills	GDOT-D1-R/W	770-718-5046	Jdills@dot.ga.gov
Zoe Chamberlain	GDOT NEPA	404-631-1174	Zchamberlain@dot.ga.gov
Pamela Baughman	GDOT Archaeology	404-631-1198	Pbaughman@dot.ga.gov
Madeline White	GDOT History	404-631-1421	Madwhite@dot.ga.gov
Allen Ferguson	GDOT	770-532-5510	Aferguson@dot.ga.gov
Jason Dykes	GDOT-Utilities	770-532-5510	Jdykes@dot.ga.gov
Andrea Gibby	City of Young Harris	706-379-3171	Cityofyh@windstream.net
Reid Dyer	Hayes-James	706-632-4981	Rdyer@HayesJames.com
Neil Kantner	GDOT-D1	770-532-5522	Nkantner@dot.ga.gov

Purpose: Concept Team Meeting for PI No. 122900.

The following were items discussed at the meeting:

- Steve Adewale moderated this meeting and started with introductions and a brief project review.
- Steve noted that several project milestones had already been passed without completion, but that significant lags that were originally built into the project schedule would provide a cushion that would prevent an overall project delay.
- Zoe Chamberlain noted that since the roundabouts were not presented to the public at either PIOH, then a separate public meeting would be required. It was noted that the PHOH was currently scheduled to occur in Spring 2012. It was suggested that the public meeting may also be addressed through the Stakeholder group that has been met with. Zoe will discuss this with Jonathan Cox, Office of Environmental Services, and provide direction to the project team.

- Ken Werho mentioned that PIOH comments had not been received at the Traffic Operations Office and requested that a copy be forwarded to him at the General Office. Ken added that his office would be available to assist with the public information meeting when the roundabouts are shown to the public.

- Lenor Bromberg discussed the Need and Purpose and project background. Neil Kantner and Zoe Chamberlain stressed that the opening year and design year for the concept/need and purpose needed to match those dates in the environmental document.

- This project is located on a designated bike route inside of Union County. The concept report will be changed to reflect that.

- HNTB walked the group through the concept report, describing the various proposed typical sections, reviewing the preferred alignment, and showing areas of greatest concern on the concept layouts.
  - History:
    - Charlotte Weber noted there are 17 resources recommended eligible for the National Register. Three historic properties at the Windy Hill/SR 515 intersection are currently shown as displacements. Since this would trigger 4(f), it was decided that all possible alternatives to avoid these two properties should be vetted and implemented. Alternatives to be vetted include a reduced median width, alignment shift and the use of retaining walls. Additional stream impacts may result from the alignment shift, but would not be of great concern.
    - There is an historic cemetery at Old Union Baptist Church in Young Harris that can be avoided with the use of a short retaining wall. It was stressed that the existing stone wall between that cemetery and the highway not be impacted. The church is not historic.
  - Ecology:
    - Beau Marshall briefly reviewed the ecology features – 86 streams, 8 wetlands, and 2 open waters – and the proposed impacts. An Individual Permit will be required.
    - There are two populations of pink lady's slipper (***Cypripedium acaule***), deemed an "unusual" species, located on the project. One is impacted by the proposed project and coordination with DNR will be required.
    - Although no individual species were found, there is suitable habitat for three federally listed protected species on the project corridor. Information Section 7 with Fish and Wildlife Service will be required, but is not anticipated to impact the project schedule.
  - Archaeology:
    - The archaeological survey has thus far encountered 3 archaeologically sensitive areas.
    - The first is an historic cemetery on existing road embankment and partially inside existing roadway right-of-way at the Bowling Gap Rd intersection. HNTB has already made an alignment shift and added a retaining wall to avoid impacts to the cemetery.
    - The second area of archaeological concern is a Mississippian-period site just west of the existing Blue Ridge Mountain EMC headquarters.
    - The third area of concern is a prehistoric soapstone tablet with petroglyphs located adjacent to the Young Harris wastewater treatment plant. There is also an associated soapstone quarry with bowl blanks across SR 66 from the soapstone tablet. These sites are located along the proposed new alignment for the Young Harris Bypass. Moving forward, the concept design will attempt to "thread the needle" through the Mississippian and soapstone sites to avoid impacts.
    - Pamela Baughman discussed the scheduling implications if any of the archeological resources were impacted.
  - Adjacent projects were discussed. The bridge replacement project on SR 66 over Brasstown Creek was discussed and it was determined that there needed to be close coordination with that project designer concerning the soapstone tablet and quarry in the immediate vicinity. Ken Werho suggested that there may be an opportunity to accelerate the SR 515 project schedule by handling the archaeology for the Young Harris Bypass intersection with SR 66 as part of the bridge replacement project. Steve Adewale said that he would coordinate this with the GDOT PM on the bridge replacement project. Rhonda Brady and Ken Werho mentioned the pedestrian improvements project at the SR 515/Industrial Blvd intersection in Blairsville. This work can be delayed and implemented as part of the signal design for the SR 515 project.
  - The alternatives considered to date for the proposed bypass around Young Harris were briefly discussed.

- The group discussed the requirements for the roundabout analysis. Ken Werho mentioned that a roundabout analysis checklist and peer review where required, and added that a lighting agreement would be required at both roundabouts. HNTB to verify this requirement with the PDP.

- HNTB discussed the traffic for Alternative 1A. The traffic analysis determined that approximately 60-70% of the traffic would remain on existing SR 515 through downtown Young Harris. The remaining traffic would depart and travel along the proposed bypass. The truck traffic would be signed to take the bypass. A two-lane roundabout functioned adequately at both Brasstown Creek Rd and Timberline Dr.

- Steve Adewale said that he is agreeable to having the VE study after concept approval. Lenor Bromberg added that if any VE recommendations were implemented after concept approval, that the concept report would require a revision.

- Utilities:
  - A discussion was had about the new location bypass portion of the project and the designation as limited access. This access classification does not allow utilities to be placed longitudinally along the proposed roadway within the right-of-way. A separate easement parallel to the road right-of-way would be required.

  - District Utilities added that the following utility owners should be added to the concept report: TVA Transmission, Young Harris water and sewer, Towns County water and sewer, and Bakam Fiber Net.
  - District Utilities also added that the Public Interest Determination Policy and Procedure recommended be changed to "yes." Their preliminary findings indicate that there is a low risk for utility relocation causing delays to the construction of the project. The Concept Team agreed that a Utility Risk Management Plan and Risk Acceptance/Avoidance recommendations would not be necessary for this project. Allen Ferguson also mentioned that the utility estimate is underway.

- HNTB discussed the Project Cost Estimate and Funding Responsibilities. The R/W estimate for Union County is currently underway, awaiting the Towns County properties from the District 1 survey team. Once the R/W estimate is complete, HNTB will forward to GDOT R/W office. The Utility Cost Estimate has been requested and is currently being completed by the Office of Utilities.

- HNTB will add the PIOH Comments to the Concept Report as an attachment, and incorporate discussion of the PIOH comments in the Alternatives Discussion section of the concept report.

- HNTB will condense the three CES cost estimate reports into a single document.

- The Office of Planning added that they will draft and provide a Project Justification Statement to include in the concept report.

- The Office of R/W stressed that with the number of parcels (205) requiring R/W purchase on this project, they will most likely need 36 months to complete the process.

- Pamela Baughman requested a meeting with HNTB to discuss implications to the schedule that would be caused by any impacts to archaeological resources. This meeting will be held on 12/20/2011.

- The Office of Traffic Safety and Design requested that HNTB align the Windy Hill/Memory Gardens and Bowling Gap/Earl Shelton intersections. HNTB will explore these possibilities and determine the impacts to properties and archaeology.

- HNTB to send concept sheets 13 and 15 to the Ken Werho at the Office of Traffic Safety and Design so his office can be reviewing the layout and can prepare for public involvement involving roundabouts.

- Young Harris Mayor Andrea Gibby was pleased with the project concept, adding that coordination is needed between it and the Transportation Enhancement (TE) project for streetscape improvements to SR 515 through Young Harris.

- Reid Dyer of Hayes-James added that he was concerned about pedestrian safety in Young Harris and extending the bike route into Towns County and along the proposed Young Harris Bypass. HNTB will coordinate with the TE project to determine if bike shoulders will be necessary on the urban 5-lane widening through Young Harris between the county line and the proposed bypass.

Action Items:

1. **HTNB to forward PIOH Summary of Comments to Ken Werho at the Office of Traffic Safety and Design.**
2. **HNTB to ensure that the opening year and design year for the concept/need and purpose match Programmed Funding dates in the STIP.**
3. **All possible alternatives to avoid the two historic properties at Windy Hill Rd should be vetted and implemented. Alternatives to be vetted include a reduced median width, alignment shift and the use of retaining walls.**
4. **HNTB to avoid impacts to the existing stone wall between that Old Union Baptist Church cemetery and SR 515.**
5. **HNTB to "thread the needle" with the proposed Young Harris Bypass footprint to avoid impacts to the archaeological sites in that area.**
6. **HNTB to schedule meeting for 12/20 with Pamela Baughman to discuss scheduling issues that could arise from archaeological impacts.**
7. **Steve Adewale to coordinate with GDOT PM's for the SR 66 Bridge Replacement (PI No. 0000304) and Industrial Blvd intersection improvements (PI No. M003883).**
8. **HNTB to verify the requirement with the PDP that a roundabout analysis checklist and peer review are required at both roundabouts.**
9. **HNTB to add the additional utility owners to the concept report.**
10. **HNTB to change the Public Interest Determination Policy and Procedure box to "yes."**
11. **HNTB to forward the R/W Estimate to the Office of R/W for review and approval once complete.**
12. **HNTB will add the PIOH Comments to the Concept Report as an attachment, and incorporate discussion of the PIOH comments in the Alternatives Discussion section of the concept report.**
13. **HNTB will condense the three CES cost estimate reports into a single document.**
14. **The Office of Planning will draft and provide a Project Justification Statement to include in the concept report.**
15. **HNTB will look at aligning the Windy Hill/Memory Gardens and Bowling Gap/Earl Shelton intersections and determine the impacts to properties and archaeology.**
16. **HNTB to send concept sheets 13 and 15 to the Ken Werho at the Office of Traffic Safety and Design so he can prepare for public involvement involving roundabouts.**
17. **HNTB to coordinate with the Young Harris TE project to determine if bike lanes are needed in the urban 5-lane widening section.**

This is our understanding of items discussed and decisions reached. Please contact us if there are changes or additions.

Submitted by,

Christopher Seckinger, PE

HNTB CORPORATION

cc: File, Attendees, Robert Mahoney (GDOT Preconstruction)

CONCEPT REPORT

ATTACHMENT 10

MINUTES FROM ANY MEETINGS THAT SHOWS SUPPORT OR OBJECTION TO THE CONCEPT

Kennedy Engineering & Associates Group LLC

Widening of SR 515/US 76 from CS 2898/Young Harris Street in Blairsville to CR 153/Timberline Drive just north of Young Harris, Union and Towns Counties

Stakeholder Meeting #1

Meeting Minutes

Project APD-00056-002(29), PI 122900

DATE: December 7, 2010

LOCATION/TIME: Young Harris City Hall/10 am to 12 pm

ATTENDEES: See attached sign-in sheet

The following items were discussed at the meeting:

The meeting opened with a welcome by Young Harris Mayor, Andrea Gibby, who noted that this would be a session where the attendees from Young Harris would listen to the project as presented by GDOT. The project team made a round of introductions including, Lori Kennedy, Steve Adewale, Dom Saulino, Laura Dawood, Katheryn Ferrall-Graff, Mark Grindstaff, Chris Seckinger, Kim Coley, Robert Mahoney, Ulysses Mitchell, and Steve Walker.

- Project Manager, Dom Saulino, HNTB, welcomed everyone to the meeting.
- Lori Kennedy, KEA Group, provided a background of the proposed project, including the previous meeting three years ago. She stated that the project team was here today to listen to what elements of a road are important to the stakeholders in Young Harris with a goal of making this project consistent with the vision of the town. This Stakeholders Meeting was a follow up to the December 10, 2007 meeting with local representatives regarding the SR 515/US 76 widening project to present the project and solicit input from local officials. In particular, the agenda included a project status update, a preliminary discussion of the alignment alternatives through the town of Young Harris, and a discussion of potentially eligible National Register historic resources.

- Laura Dawood, KEA Group, presented the need and purpose of the proposed project, which consists of improving capacity and level of service, a concern about the higher than statewide average crash, injury, and fatality data, and constructing a project identified on the Appalachian Development Highway System (ADHS) corridor.
- Dom provided an overview of traffic volumes and traffic counts at various locations along the proposed project corridor, which were taken in September 2010 and approved in the Fall 2010.
- Mark Grindstaff, HNTB, provided an overview of cultural resource documentation being conducted along the proposed project corridor, including what makes a property "historic" and what makes a property eligible for listing on the National Register of Historic Places. Mark requested input from the public on which historic resources are important to them. He also requested information on potential historic/cultural resources that he may not be aware of. He stated that there are approximately 100 historic properties along the corridor, and the criteria for determining if a property is 'historic' is if it is 50 years old or older. Mark will evaluate significance of these 'historic' parcels and their eligibility for the National Register. Lori mentioned that the NR eligibility is concurred with by the State Historic Preservation Officer (SHPO).
- Laura discussed the potential for environmental impacts along the proposed project corridor, such as farmlands, threatened and endangered species, streams, wetlands, permitting, etc.
- Dom discussed the prevalence of trout streams in Towns County and the potential for longitudinal impacts along the project corridor.

Several questions were asked by the public concerning the proposed project. Those questions and subsequent discussions are summarized below:

- **Need for the proposed project:**
    - Robert Mahoney, GDOT District 1, agreed with the need for the proposed project based on traffic capacity, level of service, crash/accident/injury rates, as well as being an ADHS project.
    - A citizen questioned the growth rate statistics and the need for the project. Robert explained that the area has grown significantly in the last 20+ years, as demonstrated by US Census data and this growth is expected to continue, regardless of the proposed project's construction or the economic downturn. Lori then explained why a time frame of 20 years was used for projected growth during project development by FHWA to fully evaluate the proposed conditions along the corridor. It was also explained that GDOT always looks to connectivity with adjoining projects.
    - It was also explained that current traffic projections exceed the safety of a three lane configuration through town.
- **Traffic counts and crash data:**
    - A citizen asked if Young Harris Street in Blairsville is where the traffic problems originate. Dom explained that the major issue is through traffic. Laura stated that there are high crash rates at this intersection.

- Reid Dyer (a consultant with Hayes, James, who attended the meeting as a citizen) asked if the proposed project was based on the current or the projected growth, since EPD has new numbers on growth projections out based on the economic downturn. Dom explained that Towns County is currently experiencing traffic volumes of 11,000 vehicles per day and 15,000 are projected. Laura explained that the traffic counts provided are current from September 2010, and that the population projections mentioned in the Need and Purpose are from the US Census Data and the Comprehensive Plans and served as background information. Bill Kendall, Towns County Commissioner, stated that in their Comprehensive Plan Update, their population projections have been lowered. The traffic capacity is part of the need for the proposed project. Dom explained that the SR 515/US 76 facility between Blairsville and Young Harris is already at capacity with the current numbers.
- Mayor Jim Conley (Blairsville) stated to his knowledge that the majority of the crashes along existing 4 lane SR 515 in Blairsville are currently in areas without traffic signals and caused by vehicles entering the roadway from side streets.
- A citizen requested information on the existing percentage of truck traffic. Laura explained that there is currently 8% truck traffic in Young Harris. A citizen stated that the majority of that is at night. Laura explained that truck traffic in Blairsville comprises 14% of total vehicles.
- A citizen asked if the number of accidents has increased through the years. Lori explained how crash rates are calculated and compared against statewide averages. Laura stated that in 2003-2005 there were 20-30 crashes and 16-21 injuries each year and this rate is higher than the statewide rate.
- A citizen asked if an increase in traffic would also mean an increase in crashes. Lori explained that the proposed facility would be expected to improve site distance, horizontal and vertical alignments, and would be expected to provide a better facility.

- **Project Design:**
  - Robert explained that in general, a four-lane, 44-foot median roadway would be expected to have a 300-500 foot-wide footprint. In urban areas, this would be reduced since the median would be reduced, but even so, there may be impacts by the roadway through Young Harris. He also stated that a 5-lane section has 60-feet of pavement, curb/gutter, and sidewalks, for approximately 80-feet of right of way, which can shift sides of the road to avoid and minimize impacts. It was stated that the alignment is often shifted from one side of the road to the other to avoid sensitive areas; however this is difficult to do in an urban area. GDOT would make the best possible effort to minimize any impacts.
  - A citizen asked that a ROW footprint be projected onto aerial maps for the next meeting for each of the alternate alignments. Robert explained that to do this, a survey of the site must be conducted. For financial reasons, this is only done once a preferred alternative has been chosen. This is because the project must stay on budget, but GDOT

can provide aerial maps which would provide more information than is currently presented.

- Lori re-emphasized to everyone that a 5-lane section may not be the preferred alternative that is ultimately selected through the town of Young Harris and that the Project Consultant Team will evaluate several potential alternatives to possibly include 4-lanes with a reduced median, a one-way pair, a bypass, etc. And that the team was here today to receive input from the stakeholder group.

- **Project Funding and Schedule:**
  - Robert stated that project funding comes from the Georgia fuel tax with matching federal funds at 20%/80%. GDOT wants to build the best project possible, but they still have to comply with federal government standards.
  - The project is now in the STIP, which is updated annually, with a schedule of environmental document approval in 2012, right-of-way in 2014, and construction in 2017. By law, GDOT cannot begin purchasing right-of-way until the environmental document has been approved.
  - The proposed project had been stopped a couple years ago because of the economic crunch and GDOT project prioritization; the governor's office has since re-activated the proposed project. Robert explained that GDOT was in the process of restructuring their projects, and only those deemed necessary and the most effective were continued.
  - A citizen raised the concern if funding would once again be cut, and questioned if the project could lose money mid-construction. Ulysses Mitchell from GDOT Planning explained that there is money to fund this project through construction.
  - A citizen asked about project schedule. This project is currently in the preliminary engineering phase, then will move into right-of-way acquisition then construction, each of which could take 2 ½ - 3 years. Robert also stated that generally, a 6 mile, 4-lane divided highway might take 2.5 to 3 years to construct.

- **Adjoining projects:**
  - A citizen questioned the controversial proposed Interstate 3 (I-3) project through Towns County, and whether the proposed SR 515/US 76 road widening project was being constructed in anticipation of the controversial I-3 project. Robert explained that the I-3 project is a federal proposal, and not a GDOT project that the state is working on. As far as he understands, the federal government has a consultant working on a feasibility study for the I-3 project, and it is just a study at this point. Robert stated that I-3 has not been taken into consideration for the proposed SR 515/US 76 project. Bill Kendall said that it was his understanding that GDOT financially was helping out with the I-3 feasibility study. Robert said that he was unaware of any GDOT funding for this study.
  - Robert stated there are two SR 66 bridge replacement projects just west of SR 515/US 76 that were previously on hold and which have now been restarted.
  - Mayor Gibby asked how the proposed project might impact any TE projects if the TE proposal that Young Harris is developing would be awarded. Steve Adewale (GDOT) explained that proposed projects always attempt to work in conjunction with adjoining

projects, such as TE projects, and that any TE project would be coordinated through the SR 515/US 76 road widening project to be incorporated into the proposed design and implementation process. The projects would work in coordination with each other. GDOT ensured the public that if TE projects were in place they would be incorporated into the plan for the proposed project and if facilities were already built by the time of construction of the proposed SR 515/US 76 project, then they would be replaced as part of the SR 515/US 76 project.

- **Possible Alternatives/Alignments:**
  - A citizen questioned if a road can go through a historic downtown area, such as Young Harris. This was followed by an explanation of the search for feasible and prudent alternatives. Lori explained that the options were weighed for the entire environmental impact, not just one factor such as history, and public involvement was intended to aid in determining which option would best meet the needs of the town and conform with environmental and engineering requirements.
  - A citizen stated that they do not want to bypass Young Harris, just improve what is currently in place. Lori gave an example of another GDOT project in which a two-lane, two-way truck bypass was utilized.
  - Lori provided additional information concerning various alternatives possible, such as a one-way pair. Cathy Cox, President of Young Harris College, asked for further information concerning the specifics of a one-way pair. Lori explained the logistics of one-way pairs, where one pair of lanes would utilize existing SR 515/US 76 and a second route would be on new location (since there isn't an existing E/W route that could be utilized through Young Harris) and carry traffic in the opposite direction. Dom also stated that there needs to be a maximum of 0.25 mile between these pair of lanes in order for the facility to function well. There would also need to be perpendicular tie-ins to facilitate traffic between these two roads. The existing additional pavement might be used as on-street parking if that is something the town might want. Lori also stated that the town might like a 5-lane section, and through town the speed limit would change.
  - Cathy asked who creates an economic impact statement. Lori explained that this is a component discussed in the environmental document associated with the proposed project, but an in depth economic impact statement will not be created in conjunction with the proposed project. However, hiring a firm to create this is always an option the college or city could pursue. Lori also explained that the goal of the project is to create a context sensitive design and to meet the objective of getting traffic through town.
  - Cathy explained that Young Harris College transitioned to a four-year university two years ago and has seen a 50% increase in the student population in recent years. The school projects a 10-15% increase in student enrollment per year for the next 4-5 years with a goal enrollment of 1,200 students (the most of which are locals). She stated that student safety is a primary concern. Cathy stated that the college has property on both sides of SR 515/US 76. She also stated that the proposed SR 515/US 76 project through the City of Young Harris would mean improved visibility for the college. The more

people who drive by the school / see the school, the more chances they have for increased enrollment. She also stated that she has seen many small towns die post-bypass, and was concerned about this happening in Young Harris. She said that this area is a very popular motorcycle rider area. She feels that local input from the citizens of Young Harris is necessary, but is open to the possibility of a one-way pair because drive by traffic would remain and ultimately benefit the college, the local businesses, and the preservation of roadside historic resources, which would not be impacted since no widening would need to occur in a one-way pair scenario. However, she would like to learn more about the potential alternatives for safe pedestrian crossing of SR 515/US 76. Cathy also stated that she had been exploring options for safer pedestrian crossing of SR 515/US 76 and would be happy to share that with the project team.

- Robert reminded those in attendance that the goal of the proposed project is to move people through town safely.
- A citizen stated that the option first presented to the public concerning the bypass several years ago was not acceptable and the community protested. He also stated that it was wise that they had waited because the options presented today were much better. Lori explained that a bypass around Young Harris was part of the original ADHS, and was only a preliminary line drawn on a map, not an actual alignment, but it was developed in order to allocate funding by Congress for the ADHS.

- **Pedestrian Safety, particularly the safety of the students of Young Harris College:**
  - Mayor Gibby questioned how to protect students who are currently crossing SR 515/US 76 in Young Harris. Robert explained that safety is GDOT's utmost concern by stating that GDOT wants what is best for the community, and to move traffic safely through the town.
  - Lori discussed options for going through downtown, and stated that the team would talk with Young Harris College to determine student pedestrian patterns, the growth plans for the college, etc. in order to best accommodate safety into the project design. Again, citizens expressed concern for safety by stating that people rarely adhere to rules concerning crossing the road. Others expressed concern over retired/elderly persons being required to climb stairs if one of the solutions were to be a pedestrian overpass over SR 515/US 76.
- **The GDOT team requested input from the public on current conditions and what was needed or wanted:**
  - Dom reminded the attendees that GDOT was here to get their feedback and learn what they needed.
  - Lori asked what is needed in downtown Young Harris, i.e. sidewalks, bike lanes, or lighting. Cathy stated that the area is popular for tourists, especially motorcyclists. Mayor Gibby stated that lighting is always an issue, and beautification is a preference.
  - Several stated that they would love to be on a bike path, specifically for the Young Harris College students

- Mayor Gibby stated that Blairsville, and Union County were recently named an Appalachian Trail Community. Young Harris, Hiawassee and Towns County are currently pursuing the same designation (and associated grants). The grants would be used to enhance trails and access between trails and the towns.
- Mayor Gibby stated that the City of Young Harris has applied for Transportation Enhancement (TE) grants for widening sidewalks, lighting (to encourage safety) and other various enhancement projects that would encourage walking. She and several citizens were concerned that the widening project would wipe out the town. She stated that traffic has certainly increased, but questioned whether it was enough to warrant the proposed project. She asked the GDOT team to present a large number of alternatives at the next meeting. She stated that the City of Young Harris's goals were to help the college and the businesses grow, and to ensure that tourism is not the only industry in town as there is a diversity of economic drivers to maintain the community. She asked about the potential for raised or planted medians which would deter people from crossing outside of a designated cross walk while, serve as a safety feature to slow traffic, and also would serve as a visual aid to beautify the community. She stated that aesthetics are very important.
- Lori asked if on-street parking would be desirable as this could be a possibility with a one-way pair or other alternatives. Mayor Gibby stated that the only concern would be safety. Cathy Cox stated that Young Harris College has been working with traffic engineers about this and they suggested that on-street parking actually slows traffic while maintaining a small town feel. Mayor Gibby said that they may need more parking since there isn't much now. Currently, the Sharp Memorial United Methodist Church uses a lot across the street and pedestrians cross US 515/US 76 for that purpose as well.

- **Additional Meetings:**
  - GDOT intends to have a second Stakeholder Meeting. This is tentatively scheduled for February 2011, with the goal of providing layouts of alternatives and obtaining stakeholder input on these alternatives. Approximately 1 month prior to the meeting, a specific date will be set and invitations sent out. To make for an effective working group, Dom recommended that the next community meeting remain approximately the same size as this meeting. After that meeting, a standard Public Information Open House will be held to gather and address comments from the public at large.
  - GDOT ensured the public that their suggestions would be incorporated into the planning process, and minutes of the meeting would be drafted.

Action Items:

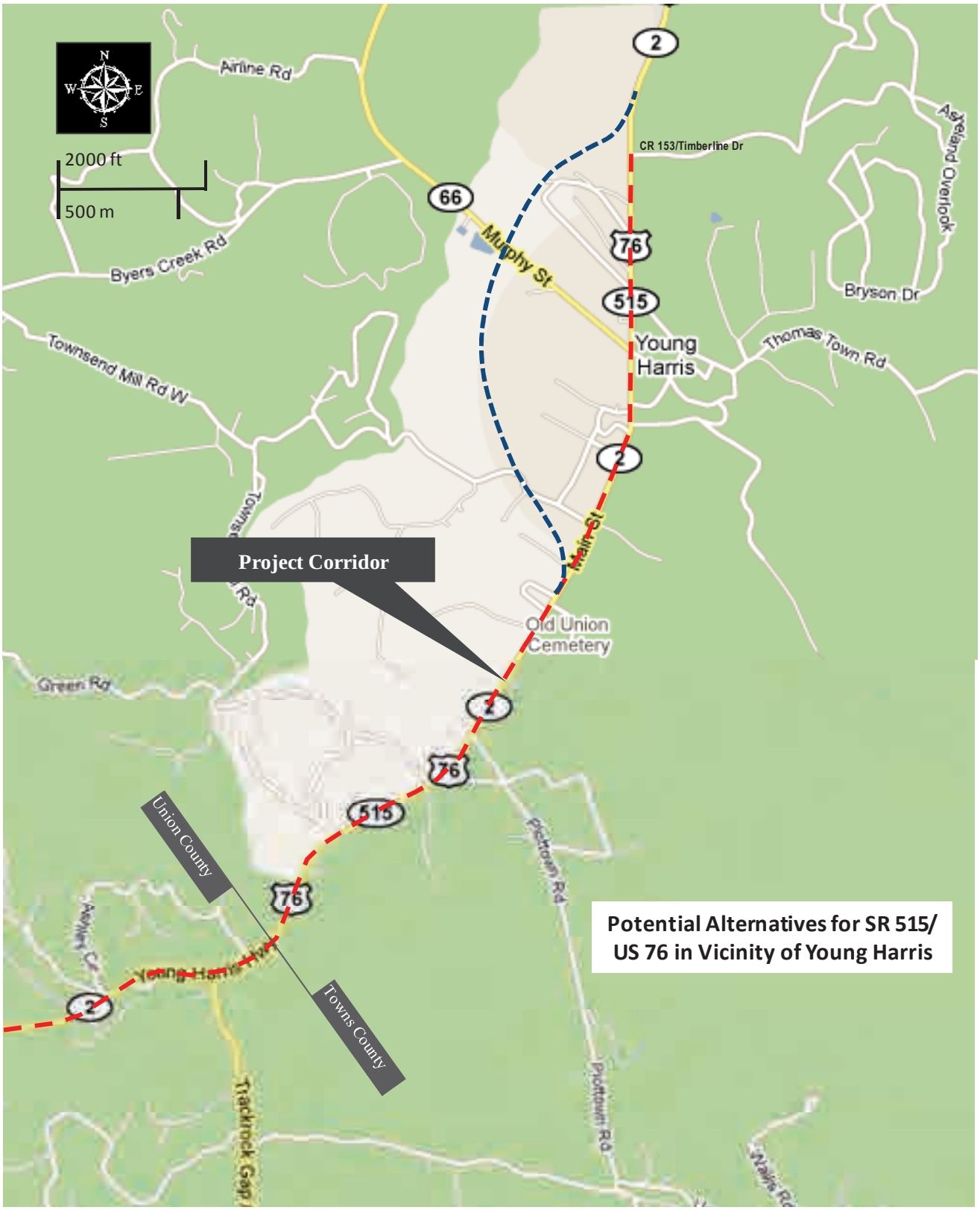
1. Project consultant team will develop several alternative alignments to present at the next meeting.
2. Project consultant team will begin coordinating in mid-January with stakeholder invitees about a potential date for the next meeting to be held in February.
3. Project consultant team will check if City of Young Harris' TE application has been submitted, reviewed, or been approved.

Submitted by,

KEA Group

Potential Alternatives for SR 515/US 76 in Vicinity of Young Harris

	4-Lane in Town w/ raised median	5-Lane in Town	2-Lane / 2-Way Bypass	One Way Pair
PROS	• College feels that widening through town would assist in maintaining vitality of college.	• College feels that widening through town would assist in maintaining vitality of college.	• Would get trucks away from town.	
CONS	• Local Historical Society concerned about impacts to Historic Resources in town. • Town applied for grant to replace sewer/water lines through town (at end of their paper work). • Widening through town does not make for a walking town. • Trucks.	• Local Historical Society concerned about impacts to Historic Resources in town. • Town applied for grant to replace sewer/water lines through town (at end of their paper work). • Widening through town does not make for a walking town. • Trucks.	• Too far away from town. • Mayor not sure if bypass would dry up town or not. • Farmland impacted.	• More driving required because one-way pairs are not two-way. • Trucks would still come through town. • Would break up neighborhoods and communities.
Comments	• City Council is very concerned about speed through town and widening could create faster speeds through town. • Mt. Regional Library applied for bond renovation for extension of library and adding parking toward 515. • Town has Comprehensive Plan; working on Master Plan. • College has Master Plan and has now started to acquire property on the opposite side of SR 515 from the college. • College – Safety/Slow moving are wishes.	• City Council is very concerned about speed through town and widening could create faster speeds through town. • Mt. Regional Library applied for bond renovation for extension of library and adding parking toward 515. • Town has Comprehensive Plan; working on Master Plan. • College has Master Plan and has now started to acquire property on the opposite side of SR 515 from the college. • College – Safety/Slow moving are wishes.	• Representative from Stephen Allison's office – Wants a growing community and would like to put people back to work. • Interested in Bypass.	



Source: ***Google Maps***

US 76/SR 2/SR 515

APD-00056-002(29), PI# 122900:

from CS 2898/Young Harris Street in Blairsville to
CR 153/Timberline Drive just north of Young Harris
Union and Towns Counties, Georgia

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE: P. I. No. 122900 OFFICE: Environmental Services
DATE: May 9, 2011

FROM Glenn Bowman, P.E., State Environmental Administrator

TO Distribution Below

SUBJECT PUBLIC INFORMATION OPEN HOUSE SYNOPSIS

PROJECT No. & COUNTIES:	APD00-0056-02(029), Union and Towns Counties
PROJECT DESCRIPTION:	Widening and relocation of State Route (SR) 515/SR 2/US 76 from CS 2898/Young Harris Street in Blairsville to Timberline Drive in Young Harris
DATE:	May 3, 2011 and May 5, 2011
NUMBER IN ATTENDANCE:	29 on May 3, 2011 in Blairsville 127 on May 5, 2011 in Young Harris
FOR:	17
CONDITIONAL:	11
UNCOMMITTED:	3
AGAINST:	15
ALTERNATIVE 1:	20
ALTERNATIVE 2A:	1
ALTERNATIVE 2B:	1
ALTERNATIVE 3:	5
ALTERNATIVE 4:	4
OFFICIALS IN ATTENDANCE:	May 3, 2011: Larry A Garret, Union County Media: Norman Cooper representing the North Georgia News May 5, 2011: Andrea Gibby, Young Harris Mayor; Cathy Cox, President Young Harris College; Deborah Edwards, Young Harris Planning Committee; John Kelley, Young Harris City Council; Matt Miller, Young Harris City Council; Mark Wolchko for State Representative Steven Allison

	Media: Charles Duncan representing the Towns County Herald
ADDITIONAL COMMENTS:	Comments made by several attendees who were against the project stated that if it “must” be constructed they would be in favor of Alignment 1. One attendee was in favor of the project in Union County, but against the project in Towns County.
PREPARED BY:	Lenor Bromberg, PE, AVS, Kennedy Engineering & Associates Group LLC
TELEPHONE No.:	(678) 904-8591 ext. 27

cc: Gerald M. Ross, P.E.
Ben Buchan, P.E.
Todd McDuffie
Steve Adewale
Bobby Hilliard
Robert Mahoney
Kim Coley
Teri Pope
Zoe Chamberlain
Gail D'Avino
Jonathon Cox
Keisha Jackson
Mike Murdoch

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE: P. I. No. 122900 **OFFICE:** Environmental Services
DATE: July 6, 2011

FROM: Glenn Bowman, P.E., State Environmental Administrator
TO: Distribution Below

SUBJECT: Project APD00-0056-02(029), Union and Towns Counties, Summary of Comments Received During the Public Comment Period – May 3, 2011 through May 17, 2011

COMMENT TOTALS:

A total of 29 people attended the public information open house held for the subject project on May 3, 2011 at the Pat Haralson Memorial Civic Center, 165 Welborn Street, Blairsville, and a total of 127 people attended the public information open house held on May 5, 2011 at the Young Harris College (Old Gym) located at 1 College Street in Young Harris.

From those attending, 46 comment forms, 0 letters and 4 verbal statements were received. An additional 46 comments were received during the ten-day comment period following the public information open house. Several citizens utilized a variety of means to submit comments; therefore each person was counted as one response regardless of how many times they commented. There were a total of 91 individual comments. They are summarized as follows:

No. Opposed	No. In Support	Uncommitted	Conditional
34	28	8	21

MAJOR CONCERNS:

Project need, traffic volumes, opposition to project, preference or opposition to a proposed alignment, access, business and economic impacts, project costs and schedule, environmental and cultural impacts, noise levels, property impacts and displacements, and request for additional public involvement

OFFICIALS:

Officials attending included the following:
Andrea Gibby, Mayor of Young Harris
Cathy Cox, President-Young Harris College

Deborah Edwards, Young Harris Planning Commission

John Kelley, Young Harris City Council

Matt Miller, Young Harris City Council

Mark Wolchko, State Rep Stephen Allison

Larry Garret, Union County

MEDIA:

Charles Duncan, Towns County Herald

Norman Cooper, North GA News

DISPOSITION OF COMMENTS:

Kennedy Engineering & Associates Group LLC will respond to all comments on behalf of the Department of Transportation.

The GDOT offices below are asked to review the responses provided by the consultant for the comments in their section. The project manager will review all responses.

REVIEWING OFFICE	COMMENT #	NATURE OF COMMENT	PROPOSED RESPONSE
Design	9, 37, 38, 39, 40, 43, 44, 47, 56, 61, 63, 65, 74, 75, 76, 87, 88	Several respondents expressed opposition to the project.	All comments received from citizens are appreciated. The input provided as a result of the PIOH regarding the need for the project is vital to the decision-making process. The proposed project will provide needed traffic capacity and safety improvements to provide acceptable travel times for the design year of 2034.
	1, 5, 6, 10, 11, 12, 12, 13, 14, 18, 21, 22, 23, 24, 27, 28, 30, 31, 32, 34, 35, 36, 40, 41, 45, 46, 48, 49, 50, 51, 53, 55, 60, 69, 79, 80, 81, 82, 84, 85, 86, 92, 93	Approximately half of the respondents expressed preference and/or opposition for a proposed alternative in their written comments.	The Department appreciates the comments expressed regarding the potential alternatives for this project. Of those citizens that provided comments cards, letters, or verbal comments, 29 supported Alternative 1 (the two-lane bypass to the west of Young Harris); 4 supported Alternative 2A (the bypass within Young Harris city limits and west of the downtown commercial area), 2 supported Alternative 2B (a second bypass within Young Harris city limits, but closer to the commercial area), 9 supported Alternative 3 (widening the existing roadway through Young Harris), and 10 supported Alternative 4 (the No-Build option). The concept development and environmental documentation process will consider the opinions expressed by the citizens regarding alternative preference as the proposed alternatives are analyzed.
	10, 12, 67, 80	The need for continued and improved access to residents and business along the project corridor was raised by several respondents.	Since the present roadway has no median, driveways to residences or businesses may be entered or exited from either direction. Although the median included in the proposed concept would have median openings located at many intersections, movements at those businesses, side streets, and residential driveways located between the median openings would be limited to right in and right out only. Safe access would be provided to these areas when traveling on the opposite side of the road via u-turns at the next intersection median opening. These turns are considered safe because the motorist is turning from a

			protected turn lane and confronting traffic generally coming from one direction. The proposed median would enhance safety for the highway user and ensure that the capacity and safety improvements are not compromised in the future by unrestricted left turning vehicles. Businesses and residents with current direct access to SR 515/US 78 will continue to have this same direct access throughout construction and as part of the final design.
	5, 29, 31, 51, 68, 69, 77, 81, 82, 84, 85, 86, 92, 93	Several respondents pointed out business and economic benefits of the various alignment alternatives and some expressed concern over potential economic impacts to area businesses from the various alignment alternatives.	SR 515 is part of Corridor A of the Appalachian Development Highway System (ADHS). The ADHS was authorized by Congress in 1965 and was designed to generate economic development in the previously isolated Appalachian region. The overall goal of the ADHS is to provide access to the region in order to stimulate economic growth. In addition, SR 515 is part of the Governor's Road Improvement Program (GRIP). Originally adopted in 1989 by the Georgia General Assembly, GRIP is a system of 19 proposed economic development highways in Georgia. The purpose of the GRIP system is to provide the transportation infrastructure necessary for economic growth by providing connectivity in rural areas of Georgia, opportunities for growth, effective and efficient transportation, and safer travel in rural areas. The Department makes every attempt to minimize property acquisition and relocations during the project design phase. Unfortunately, property acquisitions and displacements are unavoidable during some projects. As the design progresses the Department will make every effort during the final design phase to minimize the amount of right-of-way impact along the corridor.
	42, 31, 56, 64, 81, 89, 91	Questions about the cost of the proposed project were raised by several respondents. In addition,	Currently, the estimate for completing the SR 515/US78 project, including utility relocations, right-of-way acquisition, and construction, is approximately $58.7 Million. The project

		several respondents expressed a desire to see funds prioritized to other area projects and others questions where the project funds would come from.	as proposed is included in the Statewide Transportation Improvement Program (STIP) and has been identified by Union County as a priority project.
	1, 12, 24, 34, 43, 60	Respondents suggested a number of design considerations, including the addition of deceleration turn lanes and acceleration lanes at side street intersections, pedestrian enhancements within Young Harris, additional traffic signals, landscaping, general improvements to reduce crashes as needed, and the installation of a railway system instead of widening the existing roadway.	The proposed project will improve geometric design features throughout the project corridor and bring the design of the roadway up to current guidelines and standards as required by the State and Federal Departments of Transportation, which meet the required design speed and posted speed limit. Intersections are proposed to be improved where appropriate through side street realignment and other intersection modifications. If the proposed Altnerative 3 is selected, sidewalks and pedestrian cross walks would be included in the proposed improvements. Major intersections along the proposed altneratives would be reviewed to determine if traffic signals are warranted based on current State and Federal design standards and guidelines. The proposed project is included in the Statewide Transportation Improvement Program (STIP) as a needed roadway improvement project, therefore a railway system is not currently being considered a viable.
	7, 20, 47	A few questions were raised about other area projects - US 76 east of Hiawassee and US 126 south of Blairsville.	Existing roadways and other planned projects will all be considered as part of the planning for the proposed project. For additonal information about other proposed area projects, please visit the Department's website at www.dot.ga.gov and click on Active Transportation Projects.

REVIEWING OFFICE	COMMENT #	NATURE OF COMMENT	PROPOSED RESPONSE
Right-of-Way	2, 12, 13, 14, 17, 20, 21, 22, 27, 28, 30, 35, 36, 49, 50, 57, 58, 59, 68, 70, 74, 75, 76, 77, 80, 81, 82, 83, 87, 88, 89, 92	A large number of the respondents expressed concerns about the potential for property impacts and displacement. In addition, there were concerns expressed about potential impacts to property values and inquiries about having property purchased.	Land acquisition for transportation purposes is strictly governed by numerous state and federal laws and regulations. Since it is not appropriate to discuss individual impacts and compensation in this format, the GDOT Right-of-Way Office will send out letters under separate cover to those property owners who would be affected by land acquisition for the proposed project. For additional information, please contact Troy Byers, State Right-of-Way Acquisition Manager at (404) 347-0176.
		####	

REVIEWING OFFICE	COMMENT #	NATURE OF COMMENT	PROPOSED RESPONSE
Traffic Operations	12, 40, 42, 42, 43, 45, 47, 56, 60, 65, 75, 76, 77, 78	A number of comments were made regarding the validity of the Department's traffic analysis and projected traffic volumes. In addition, there were comments about the need to retain traffic flow through Young Harris, the need to remove truck traffic from the downtown area, and the need to reduce the speed of traffic.	When traffic volumes reach the levels projected in the next twenty years along SR 515/US 78, capacity will need to be increased to allow safe and efficient operations. Traffic analyses completed by the Department, which are based on historic traffic counts taken along SR 515/US 78, indicate that capacity and Level of Service (LOS) will be at an undesirable level by the design year (2034). LOS rates the quality of traffic operations along a roadway, with A signifying free flowing traffic and F indicating highly congested conditions. The existing (2010) traffic volume on the proposed project corridor is 16,900 vehicles per day (vpd) and the LOS is C. The design year (2034) traffic volume is projected to be 34,500 vpd. The 2034 LOS would be E if no improvements are made, and would improve to LOS C with the construction of the proposed improvements. The traffic analyses completed by the Department indicate that if a bypass alternative around the downtown commerical area of Young Harris wre implemented, approximately 30 to 40 percent of the traffic would be expected to utilize the bypass and avoid the through-town route. The remaining 60 to 70 percent of the traffic volume would continue into and through town. Existing truck traffic is estimated to account for 12 percent of total traffic volume for this proposed project in 2010 and is expected to remain at 12 percent in the deign year (2034). If a bypass alternative were implemented the County and City of Young Harris could require through truck traffic with no destination within the city limits to utilize the bypass. This measure would require local enforcement. The Department cannot control the speed motorists choose; however, the Department has a responsibility to design a

			project which provides a safe and efficient corridor for the residents of the area as well as other motorists utilizing the corridor. The proposed project will be designed to provide a safe roadway facility to accommodate the predicted future traffic volume using the appropriate design standards. All comments and recommendations regarding the enforcement of the speed limits in the project area should be directed to your local law enforcement agency.

REVIEWING OFFICE	COMMENT #	NATURE OF COMMENT	PROPOSED RESPONSE
Planning	42, 56, 57, 58, 59, 64, 67, 68, 71, 72, 74, 75, 76, 78	A number of respondents expressed concern about the need for the proposed project.	The need for the improvements along SR 515/US 76 is to provide operational improvements, as the existing crash and injury rates along the corridor exceed most of the corresponding annual statewide averages. In addition, there is the need to address future capacity issues and deficient level of service along the proposed corridor.

REVIEWING OFFICE	COMMENT #	NATURE OF COMMENT	PROPOSED RESPONSE
Environment	42, 56, 64	Several comments were provided that requested additional public involvement activities be held.	Public involvement is an important part of any project that is undertaken by the Department. Once the draft environmental document is approved, the Department will hold a public hearing open house (PHOH) to allow the public to review and comment on the project and the draft environmental document.
	3, 21, 43, 49, 54, 63, 6477, 83, 92	Several respondents provided comments regarding impacts to environmental and cultural impacts along the proposed project and the need to avoid and minimize these impacts.	The Department has worked, and will continue working to develop ways to avoid, minimize, and mitigate any impacts to environmental and cultural resources along the corridor as the proposed project moves forward. The proposed project alignments were developed by the Department which, as a standard procedure, includes environmental parameters as a part of the location investigation prior to laying out a proposed alignment. Data for this project included, at a minimum, aerial photography, topographic maps, traffic (existing and projected), previous studies, wetland inventory maps, soil surveys maps, floodplain maps, and Georgia Department of Natural Resources historic resource survey maps. As concept development continues, the proposed alignment will be developed with every attempt being made to avoid sensitive ecological, historical, and archaeological areas. In the event that avoidance was not possible, every attempt was made to minimize harm to such resources.

REVIEWING OFFICE	COMMENT #	NATURE OF COMMENT	PROPOSED RESPONSE
Environment (continued)	13, 92	The possibility of increased noise levels as a result of the project construction and increased traffic through town was expressed as a concern.	Considerations to mitigate noise impacts from highway traffic generated noise are part of the planning, location, and design of this project, as for all Federal-aid transportation projects of this type. As part of this project, a Noise Impact Assessment Study will be conducted to determine the acoustic impact of the proposed project and the need for abatement measures. The determination of noise impacts and abatement measures will be in compliance with Title 23, Code of Federal Regulation (CFR), Part 772, and the Department's policies for highway noise barrier construction. More information regarding the Department's noise barrier policy can be found in Section 11.2.6 of the Department's Design Policy Manual, available online at http://wwwb.dot.ga.gov/dpm/index.html. Additional information concerning the Federal Highway Administration's guidelines is available at http://www.fhwa.dot.gov/environment/noise/mem_nois.htm.

Attached is a complete transcript of the comments received during the comment period and a copy of the public information open house handout for review. **Your input on the proposed responses is required by** July 20, 2011. Please direct your comments via email to Lenor Bromberg (lbromberg@keagroup.com) and copy Zoé Chamberlin (zchamberlain@dot.ga.gov), of this office.

If you have any questions about the comments, please either email or call Zoé Chamberlin at (404) 631-1174.

GB/zc/

Attachments

DISTRIBUTION:
Russell R. McMurry, w/attachments
Steve Adewale, w/attachments
District 1 Attn: Todd McDuffie, w/attachments
Angela T. Alexander, w/attachments
Kathy Zahul, P.E., w/attachments
Howard (Phil) Copeland (Attn: Troy Byers), w/attachments

PUBLIC INFORMATION OPEN HOUSE
PUBLIC/CITY OFFICIALS SIGN-IN SHEET
PROJECT: APD00-0056-02(029), PI. NO. 122900
UNION AND TOWNS COUNTIES

May 3, 2011

Please print

Name	Affiliation	Address	Phone No.
Chas. Jenkins	Citizen	P.O. Box	745-4684
Reid Dyer	HJ	442 Pauline Ln, Blue	706-632-4981
Timothy Jennings	Citizen	99 Blacksmith	706-439-6070
North GA News - Norman Cooper			
Larry A. Garrett	Union Co.		706 781-5660

Attendees: 127

PUBLIC INFORMATION OPEN HOUSE
PUBLIC/CITY OFFICIALS SIGN-IN SHEET
PROJECT: APD00-0056-02(029), PI. NO. 122900
UNION AND TOWNS COUNTIES

May 5, 2011

Please print

Name	Affiliation	Address	Phone No.
Andrea Gibby	Mayor of Young Harris		
Cathy Coy	President-Young Harris College		
Charles Duncan	[illegible]	Towns County Herald	
Deborah Edwards	Y H Planning Com.		
~~Brian Tench~~			
John Kelley	Y H City Council		
Matt Miller	Y H City Council		
MARK WOLCHKO	STATE REP STEPHEN ALLISON		

Vance C. Smith, Jr., Commissioner

GEORGIA DEPARTMENT OF TRANSPORTATION

One Georgia Center, 600 West Peachtree Street, NW
Atlanta, Georgia 30308
Telephone: (404) 631-1000

July 22, 2011

«AddressBlock»

Re: Project APD00-0056-02(029), Union and Towns Counties, P.I. No. 122900, SR 515/US 78 from CS 2898/Young Harris Street in Blairsville to CR 153/Timberline Drive just north of Young Harris – Responses to Open House Comments

«GreetingLine»

Thank you for your comments concerning the proposed project referenced above. We appreciate your participation and all the input that was received as a result of the May 3, 2011 and May 5, 2011 Public Information Open Houses (PIOH s). Every written comment received and verbal comment given to the court reporter at the PIOHs will be made part of the official record of the project.

A total of 29 people attended the May 3, 2011 PIOH in Blairsville and 127 attended the May 5, 2011 PIOH in Young Harris. Of the 91 respondents who formally commented, 27 were in support of the project, 34 were opposed, 9 were uncommitted, and 21 expressed conditional support. Of the 82 citizens who expressed preference for a particular alternative in their formal comments:

- 32 supported Alternative 1 (the two-lane bypass to the west of Young Harris);
- 4 supported Alternative 2A (bypass within Young Harris city limits and west of the downtown commercial area);
- 5 supported Alternative 2B (a second bypass within Young Harris city limits, but closer to the commercial area);
- 12 supported Alternative 3 (widening the existing roadway through Young Harris); and
- 29 supported Alternative 4 (the No-Build option).

There were 5 respondents that expressed opposition to the project, but did not note a preference for Alternative 4 (the No-Build option) in their formal comments. The opinions expressed by citizens will be considered as the proposed project continues forward.

The attendees of the PIOHs and those persons sending in comments afterwards raised the following questions and concerns. The Georgia Department of Transportation (GDOT) has prepared this one response letter that addresses all comments received so that everyone can be aware of the concerns raised and the responses given. Please find the comments summarized below (*in italics*) followed by our response.

- *The need for continued and improved access to residents and business along the project corridor was raised by several respondents.*

Since the present roadway has no median, driveways to residences or businesses may be entered or exited from either direction. Although the median included in the proposed concept would have median openings located at many intersections, movements at those businesses, side streets, and residential driveways located between the median openings would be limited to right in and right out only. Access would be provided to these properties when traveling on the opposite side of the road via u-turns at the next intersection median opening. The motorist would turn from a designated turn lane and confront traffic generally coming from one direction. The proposed median would enhance safety for the highway user by reducing the number of conflict points and restrict mid-block left turns. GDOT has seen

reductions in crash and injury rates as a result of installing raised medians. Please refer to GDOT's website for more information on this topic (http://www.dot.ga.gov/informationcenter/programs/safety/Pages/MedianInstallation.aspx). In addition, the addition of a raised median would ensure that the capacity improvements are not compromised in the future by unrestricted left turning vehicles. Businesses and residents with current direct access to SR 515/US 78 will continue to have this same direct access throughout construction and as part of the final design.

- *Several respondents pointed out possible benefits as well as possible impacts to local businesses and potential for economic development that may result from completion of the various alignment alternatives.*

A number of studies have been completed across the United States by economic and transportation experts at colleges and universities, such as the University of Kentucky, University of Texas, Purdue University, and by several Transportation Centers, Economic Development Research Groups, and Departments of Transportation regarding the benefits and impacts of roadway bypasses on communities. Most of these studies came to the following general results:

  - Very little evidence was found to indicate that bypasses have negative impacts to a community's economy. However, it was noted that the smaller the community, the more potential there could be for negative impacts.
  - After some time had passed, communities found that through town traffic levels were the same as pre-bypass conditions, indicating continued economic activity in town.
  - Generally retail businesses did not relocate out of town to the bypass nor did new retail centers choose to locate along the bypass.
  - Many communities that were interviewed as a part of the various studies believed the bypasses provided an overall benefit to their town and recognized that although the bypass did bring some changes to the town, addressing them in advance of and during construction of the bypass allowed the locals to ensure maximum benefits and minimal impacts to their community.

In compliance with the National Environmental Protection Act (NEPA) documentation process, GDOT will consider the possible positive and negative economic consequences and impacts to land use when evaluating the proposed alternatives.

- *Questions about the cost of the proposed project were raised by several respondents. In addition, several respondents expressed a desire to see funds prioritized to other area projects, while others questioned the source of money for the project funds would come from.*

Currently, the estimate for completing the SR 515/US78 project, including utility relocations, right-of-way acquisition, and construction, is approximately $58.7 Million. The breakdown of funding in respect to both State and Federal commitments on this project is as follows:

	Right-of-Way	**Construction**
Federal	$25,820,000.00	$13,728,800.00
State	$6,455,000.00	$3,432,200.00

The project as proposed is included in the Statewide Transportation Improvement Program (STIP) and has been identified by Union County as a priority project.

- *Respondents suggested a number of design considerations, including the addition of deceleration turn lanes and acceleration lanes at side street intersections, pedestrian enhancements within Young Harris, additional traffic signals, landscaping, general improvements to reduce crashes as needed, and the installation of a railway system instead of widening the existing roadway.*

The proposed project will improve geometric design features throughout the project corridor and bring the design of the roadway up to current state and federal guidelines and standards. Intersections are proposed to be improved where appropriate through side street realignment and other intersection modifications. Turn lane improvements are proposed along the SR 515/US 76 corridor at median opening locations and would be based on traffic data showing the volume of turning movements. Sidewalks and pedestrian crosswalks will be considered as part of all of the proposed alternatives. Major intersections along the proposed alternatives would be reviewed to determine if traffic signals are warranted based on current State and Federal design standards and guidelines. The proposed project is included in the Statewide Transportation Improvement Program (STIP) as a needed roadway improvement project; therefore a railway system is not currently being considered.

- *A few questions were raised about other area projects - US 76 east of Hiawassee and US 126 south of Blairsville.*

Existing roadways and other planned projects will all be considered as part of the planning for the proposed project. For additional information about other proposed area projects, please visit the Department's website at www.dot.ga.gov and click on Active Transportation Projects.

- *A large number of the respondents expressed concerns about the potential for property impacts and displacement. In addition, there were concerns expressed about potential impacts to property values and inquiries about having property purchased.*

Land acquisition for transportation purposes is strictly governed by numerous state and federal laws and regulations. Since it is not appropriate to discuss individual impacts and compensation in this format, the GDOT Right-of-Way Office will send out letters under separate cover to those property owners who would be affected by land acquisition for the proposed project. For additional information, please contact Troy Byers, State Right-of-Way Acquisition Manager at (404) 347-0176.

- *A number of comments were made regarding the validity of the Department's traffic analysis and resulting projected traffic volumes.*

The traffic analyses completed by the GDOT were based on historic traffic data taken from a permanent traffic counter located along SR 515/US 78 and indicate that capacity and Level of Service (LOS) will be at an undesirable level by the design year (2034). LOS rates the quality of traffic operations along a roadway, with A signifying free flowing traffic and F indicating highly congested conditions. The existing (2010) traffic volume on the proposed project corridor is 16,900 vehicles per day (vpd) and the LOS is C. The design year (2034) traffic volume is projected to be 34,500 vpd. The 2034 LOS would be E if no improvements are made, and would be improved to LOS C with the construction of any of the proposed bypass or widening alignments.

- *There were comments about the need to retain traffic flow through Young Harris.*

The traffic analyses completed by the GDOT indicate that if a bypass alternative around the downtown commercial area of Young Harris were implemented, approximately 30 to 40 percent of the traffic would be expected to utilize the bypass and avoid the through-town route. The remaining 60 to 70 percent of the traffic volume would continue into and through town.

- *Several respondents noted the need to remove truck traffic from the downtown area.*

Existing truck traffic is estimated to account for 12 percent of total traffic volume for this proposed project in 2010 and is expected to remain at 12 percent in the design year (2034). If a bypass alternative were implemented the County and City of Young Harris could require through truck traffic with no destination within the city limits to utilize the bypass. This measure would require local enforcement.

- *Comments were provided about the need to reduce the speed of traffic.*

The GDOT cannot control the speed motorists choose to drive; however, the GDOT has a responsibility to design a project, which provides a safe and efficient corridor for the residents of the area, as well as other motorists utilizing the corridor. The proposed project will be designed to provide a safe roadway facility to accommodate the predicted future traffic volume using the appropriate design standards. All comments and recommendations regarding the enforcement of the speed limits in the project area should be directed to local law enforcement officials.

- *A number of respondents expressed concern about the need for the proposed project.*

The need for the improvements along SR 515/US 76 is to address current and future capacity deficiencies, as well as reduce the crash and injury rates along the corridor. As noted above, traffic volumes along the corridor are anticipated to increase substantially over the next 20 years and increased capacity is a primary purpose for the proposed project. An assessment of crash statistics from 2006, 2007, and 2008 show a need to improve safety on the corridor. In 2007 and 2008, crash and injury rates exceeded statewide averages for rural principal arterials, and the fatality rate exceeded statewide averages in 2008. Not only do crash statistics evidence a need to reduce the frequency and severity of crashes, this need has the potential to magnify in the future as traffic volumes grow. With traffic expected to increase by 80 percent in the 20 year interval between the Build Year (2014) and the Design Year (2034), there is an increased chance of congestion-related crashes, such as those caused by conflicting turning movements. The frequency and severity of crashes may also continue as a result of curvy roadway conditions and inconsistent lane configurations along the corridor. The condition that poses the greatest safety concern is the lack of an existing median and right and left turn lanes at side road intersections. The proposed project would change the typical section to include a depressed grass median or a center turn lane in order to address existing deficiencies.

- *Several comments were provided that requested additional public involvement activities be held.*

Public involvement is an important part of any project that is undertaken by the GDOT and we will hold additional stakeholder meetings and open houses for the general public to allow for additional review and comment as the project develops further.

- *Several respondents provided comments regarding impacts to natural, cultural, and community resources along the proposed project and the need to avoid and minimize these impacts.*

The GDOT has worked, and will continue working to develop ways to avoid, minimize, and mitigate any impacts to natural, cultural, and community resources along the corridor as the proposed project moves forward. The project is being developed in compliance with NEPA and an Environmental Assessment will be prepared to document that all prudent and feasible measures have been implemented to avoid, minimize and mitigate impacts. The proposed project alignments were developed by the GDOT which, as a standard procedure, includes natural, cultural, and community parameters as a part of the location investigation prior to laying out a proposed alignment. As concept development

CONCEPT REPORT

ATTACHMENT 11

VE IMPLEMENTATION LETTER

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE: APD00-0056-02(029) Union & Towns Co.
P.I. No.: 122900-
SR 515/ US 76 East Blairsville to Young Harris Bypass

OFFICE: Engineering Services

DATE: October 5, 2015

FROM: Lisa L. Myers, State Project Review Engineer

TO: Albert Shelby, State Program Delivery Engineer
Attn.: Steve Adewale

SUBJECT: IMPLEMENTATION OF VALUE ENGINEERING STUDY ALTERNATIVES

The VE Study for the above project was held August 10-13, 2015. Responses were revised and received on September 29, 2015. Recommendations for implementation of Value Engineering Study Alternatives are indicated in the table below. The Project Manager shall incorporate the VE alternatives recommended for implementation to the extent reasonable in the design of the project. Please note, if the implementation of a VE recommendation requires a Design Exception and/or Design Variance, the DE or DV must be requested separately.

ALT #	Description	Potential Savings/ LCC	Implement	Comments
R-1.0	Establish a consistent width of 150' for Right of Way and utilize easement beyond that to allow property owners the opportunity to use their land after construction is completed.	$1,165,000	No	The District Right of Way Office prefers to have all slopes shown as required Right of Way instead of easement. Also, they indicated that the cost of permanent easement is 90% of the appraised value instead of the 50% used to calculate these savings.
R-2.0	Use 11 feet inside lane widths in lieu of 12 feet for the new pavement for the 4-lane divided section Sta. 116+00 to 420+38.	$357,000	Yes	This will be done.
R-3.0	Change the 32 feet wide depressed grassed median to a standard 24 feet wide raised grass median for the 4-lane section Sta. 116+00 to 426+00.	$1,075,000	No	An environmental goal with US Fish & Wildlife for the storm water system on this project is to provide water quality treatment for all runoff from impervious areas within the project limits. The wider depressed median allows for water quality BMP's to be placed within the roadway embankment/foot print. These BMP's will help treat the storm water runoff prior to discharging to receiving waters.

R-5.0	Reduce width of outside paved shoulder from 6.5 feet to 4 feet.	$456,000	No	The corridor is a designated bike route and a reduction in the paved shoulder width and elimination of the rumble strips would not benefit bike travel along this corridor which has large truck volumes and a curvilinear alignment.
R-9.0	Shift the horizontal alignment closer to existing roadway to reduce retaining walls and minimize impacts from Sta. 130+00 to 170+00.	Proposed $2,394,000 Actual $1,454,000	Yes, with modifications	To avoid any additional stream impacts the alignment will be revised between Sta. 145+00 thru 165+00 to reduce wall heights.
R-10.0	Shift the horizontal alignment closer to existing roadway to reduce earthwork and minimize impacts from Sta. 235+00 to 250+00.	Proposed $278,000 Actual $189,000	Yes, with modifications	The alignment will be shifted as recommended however the property reduction is residential and not commercial so the difference in savings has been modified.
R-12.0	Eliminate guardrail and utilize traversable slopes at specific locations.	$17,000	No	At these specific locations the slopes would require additional Right of Way and that cost would be equal or greater than the anticipated savings.

The Office of Engineering Services concurs with the Project Manager's responses.

Approved: Margaret B. Pirkle **Date:** 10.22.15
Margaret B. Pirkle, PE, Chief Engineer

LLM/RLR/MJS
Attachments
c: Glenn Bowman/Joe Carpenter
Albert Shelby/Steve Adewale
Marc Mastronardi
Ben Rabun/Bill Duvall
Rick O'Hara/Pamela Baughman
Harold Mull/Chris York/Rob Mabry
Ken Werho/Chris Raymond
Matt Sanders

DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE: APD00-0056-02(029) Union/Towns Co.
PI No.: 122900-
SR515/2/US 76 from East Blairsville to Young Harris Bypass@ CL/CORR A

Office: Program Delivery

DATE: September 20, 2015

FROM: Albert V. Shelby III, State Program Delivery Engineer

TO: Lisa Myers, State Project Review Engineer
Attn: Matt Sanders, Value Engineering Specialist

SUBJECT: **RESPONSE TO VALUE ENGINEERING STUDY ALTERNATIVES**

Attached are the responses for the Value Engineering Study. This office concurs with the responses.

If you have any questions, please contact Steve Adewale, Project Manager at 404-631-1578.

AVS:KWN:ASA

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Infrastructure Solutions

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HNTB

VE ALTERNATIVE #1
Establish a consistent width for ROW of 150'.
VE Team Savings: $1,165,000

Disposition Recommendation:

☐ **AGREE** ☐ **AGREE, WITH MODIFICATIONS** ☒ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:
The District 1 ROW Office would prefer to have all slopes, especially 2:1 slopes, as ROW and not permanent easement. Also, they indicated that the cost of permanent easement is 90% of the appraised value and not 50% as used in the recommendation.

VE ALTERNATIVE #2
Use 11' inside lane widths in lieu of 12' lane widths.
VE Team Savings: $357,000

Disposition Recommendation:

☒ **AGREE** ☐ **AGREE, WITH MODIFICATIONS** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:
An 11' inside lane width will be used in lieu of the proposed 12' lane on the four-lane divided section.

VE ALTERNATIVE #3
Change the median from 32' depressed grassed to a GDOT Standard 24' raised grassed median for the 4-lane divided section.
VE Team Savings: $1,075,000

Disposition Recommendation:

☐ **AGREE** ☐ **AGREE, WITH MODIFICATIONS** ☒ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:
This will not be done. The reduction in width will be detrimental to meeting water quality improvements requested by the US Fish & Wildlife to maintain bat habitat. An environmental coordination goal for the stormwater system on this project is to provide water quality treatment for all stormwater runoff from impervious areas within the project limits. The wider depressed

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median allows for water quality BMPs to be placed within the roadway embankment/footprint. These BMPs will treat the stormwater runoff prior to discharging to receiving waters protecting habitat for protected species foraging. A raised median would make more of these BMPs infeasible. Also, increased pipe size from a median drainage outlet to a storm drain was not accounted for.

VE ALTERNATIVE #5
Reduce width of outside paved shoulder from 6.5' to 4'.
VE Team Savings: $456,000

Disposition Recommendation:

☐ **AGREE** ☐ **AGREE, WITH MODIFICATIONS** ☒ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:
This will not be done. The corridor is a designated bike route and a reduction in the paved shoulder width and elimination of the rumble strips is not conducive to bike travel along a corridor with a large truck volume and the curvilinear alignment.

VE ALTERNATIVE #9
Shift horizontal alignment closer to existing from Sta. 130 to 170.
VE Team Savings: $2,394,000

Disposition Recommendation:

☐ **AGREE** ☒ **AGREE, WITH MODIFICATIONS** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:
The horizontal alignment was designed to minimize impacts to Butternut Creek which parallels the existing alignment. The shifts recommended will result in an additional 600 LF of stream impacts and 300 LF of stream relocation. We will revise the alignment between Sta. 145 – 165 to reduce the wall height, which can be done without additional stream impacts. Please note that the PAR process has been completed with agency approval.

Revised Savings: $1,454,000, see attached calculations.

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VE ALTERNATIVE #10
Shift horizontal alignment closer to existing from Sta. 235 to 250.
VE Team Savings: $278,000

Disposition Recommendation:

☐ **AGREE** ☒ **AGREE, WITH MODIFICATIONS** ☐ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:
The horizontal alignment will be shifted as recommended by the VE Team. However, the property reduction is a residential property and not commercial. The difference in ROW cost is reflected in the modification.

Revised Savings: $189,000, see attached calculations.

VE ALTERNATIVE #12
Eliminate guardrails and utilize traversable slopes at specific locations.
VE Team Savings: $17,000

Disposition Recommendation:

☐ **AGREE** ☐ **AGREE, WITH MODIFICATIONS** ☒ **DISAGREE**

Explain, comment, and/or discuss rationale for disposition recommendation:
This will not be done. The proposed revision does not take into account the additional ROW that will result with extending the fill line. The cost of additional ROW will be greater than the anticipated savings.

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COST ESTIMATING WORKSHEET

PROPOSAL NUMBER	R-9.0	PAGE NUMBER	1 of 2

PROJECT #/PI #:	APD00-0056-02(029)/122900-

VE Recommendation

ITEM	SOURCE CODE	U/M	QTY	UNIT COST	TOTAL COST
Permanently Anchored Wall	1/7	LS	1	1,176,247	$1,176,247
Unclass. Excavation (Reduction)	1/7	CY	243,604	3.82	($930,567)
Right of Way (Reduction)	1/7	AC	3.80	107,366	($407,991)
SUBTOTAL-COST TO PRIME					($162,000)
MARKUP					--
TOTAL CONTRACT COST					($162,000)

HNTB Revision

ITEM	SOURCE CODE	U/M	QTY	UNIT COST	TOTAL COST
Permanently Anchored Wall	1/7	LS	1	1,176,247	$1,785,600
Unclass. Excavation (Reduction)	1/7	CY	185,254	3.82	($707,670)
Right of Way (Reduction)	1/7	AC	3.0	107,366	($322,098)
SUBTOTAL-COST TO PRIME					$777,832
MARKUP					--
TOTAL CONTRACT COST					$777,839

Difference [Revised] $1,454,168

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CALCULATIONS

PROPOSAL NUMBER	R-9.0	PAGE NUMBER	2 of 2

PROJECT #/PI #:	APD00-0056-02(029)/122900-

Anchored Wall:
Original Wall Area = 58,350 sq ft (Estimated from Original Cross Sections)
Proposed Wall Area = 46,680 sq ft (Estimated from Original Cross Sections)
Area Change Ratio = 46,680/58,350 = 0.80

Original Cost = $2,232,000
Proposed Cost = $2,232,000 x 0.80 = $1,785,600

Unclassified Excavation:
Reduction in excavation estimated as the area between the original and proposed walls at each 50 foot station. Volume estimated a sum of areas over tributary 50 ft lengths.
Area = (1/2)[Original Wall Height + Proposed Wall Height][Distance between walls]
Volume = $\sum$[Area x 50 ft tributary length]

Proposed Reduction = $3.82/cu yd x 185,254 cu yd = $707,670

Right of Way:
Estimated Reduction in right of way = 3.80 acres
Unit Cost = $107,366 (Property assumed to be commercial property)

Proposed Reduction = 3.0 acres x $107,366 = $322,098

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COST ESTIMATING WORKSHEET

PROPOSAL NUMBER	R-10.0	PAGE NUMBER	1 of 1

PROJECT #/PI #:	APD00-0056-02(029)/122900-

VE Recommendation

ITEM	SOURCE CODE	U/M	QTY	UNIT COST	TOTAL COST
Unclass. Excavation (Reduction)	1/7	CY	44,616	3.82	($170,433)
Right of Way (Reduction)	1/7	AC	1.0	107,366	($107,366)
SUBTOTAL-COST TO PRIME					($278,000)
MARKUP					--
TOTAL CONTRACT COST					($278,000)

HNTB Revision

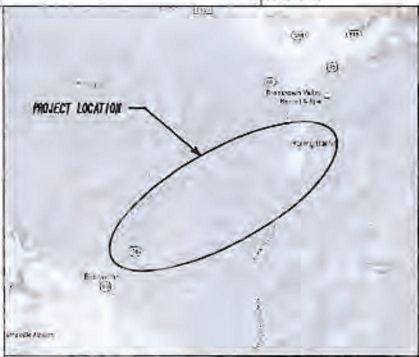
ITEM	SOURCE CODE	U/M	QTY	UNIT COST	TOTAL COST
Unclass. Excavation (Reduction)	1/7	CY	44,616	3.82	($170,433)
Right of Way (Reduction)	1/7	AC	1.0	18,475	($18,475)
SUBTOTAL-COST TO PRIME					($189,000)
MARKUP					--
TOTAL CONTRACT COST					($189,000)

Difference [Revised] $189,000

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

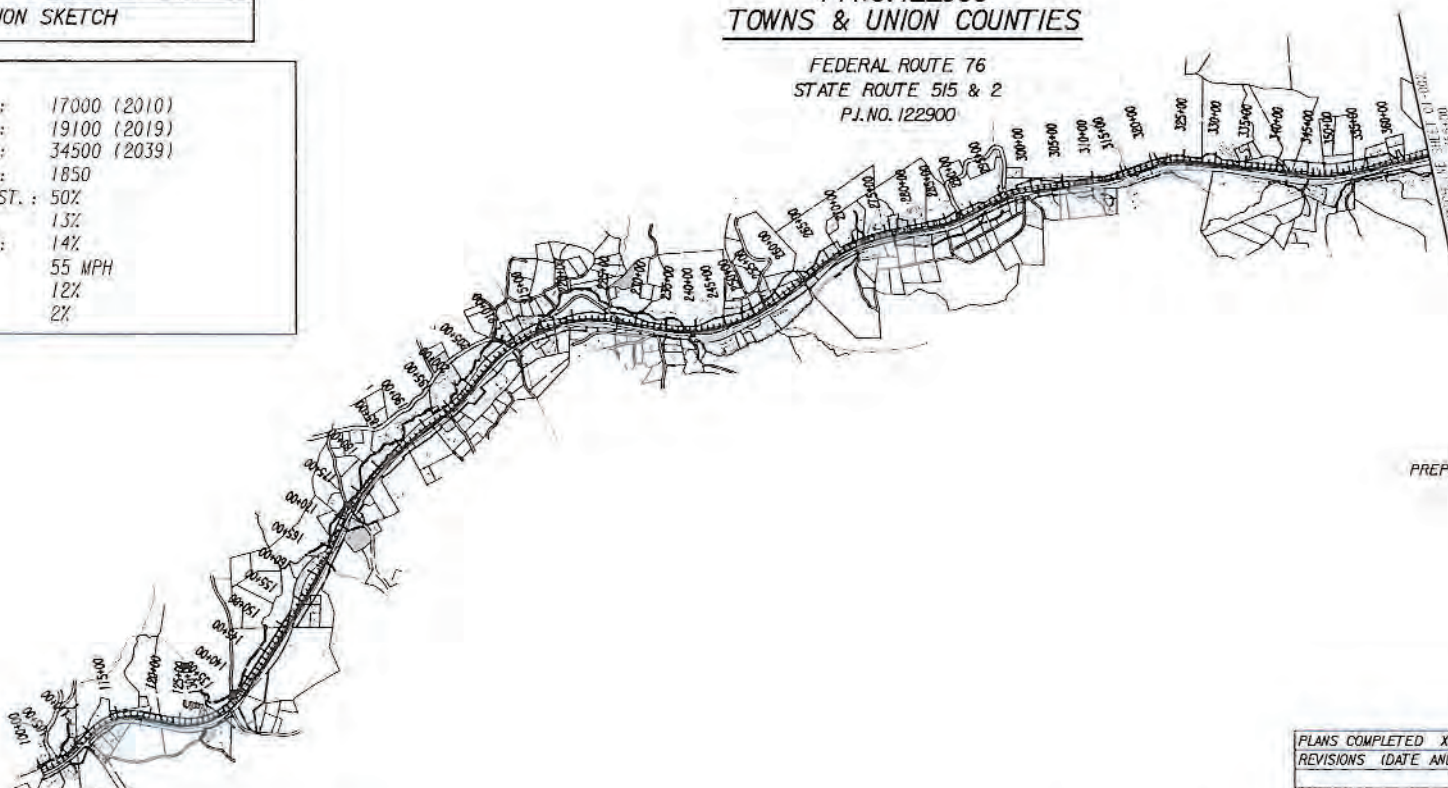
PLAN AND PROFILE OF PROPOSED
SR 515 & 2/US 76 WIDENING FROM BLAIRSVILLE TO YOUNG HARRIS

PROJECT NO. APD00-0056-02(029)
PI NO. 122900
TOWNS & UNION COUNTIES



LOCATION SKETCH

DESIGN DATA:	
TRAFFIC A.D.T.:	17000 (2010)
TRAFFIC A.D.T.:	19100 (2019)
TRAFFIC A.D.T.:	34500 (2039)
TRAFFIC D.H.V.:	1850
DIRECTIONAL DIST.:	50%
% TRUCKS:	13%
24 HR. TRUCKS %:	14%
SPEED DESIGN:	55 MPH
SU:	12%
COMB:	2%



LOCATION & DESIGN
APPROVAL DATE: XX/XX/20XX

SR 515 FUNCTIONAL CLASS:
RURAL PRINCIPAL ARTERIAL 55 MPH

THIS PROJECT IS LOCATED IN TOWNS & UNION COUNTIES

PROJECT DESIGNATION:
DESIGNED IN ENGLISH UNITS.

THIS PROJECT HAS BEEN PREPARED USING THE HORIZONTAL GEORGIA COORDINATE SYSTEM OF 1984 (NAD 1983/94 WEST ZONE, AND THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.

LENGTH OF PROJECT	TOWNS COUNTY COUNTY No. 281 UNION COUNTY COUNTY No. 291 Project No. 122900
	MILES
NET LENGTH OF ROADWAY	7.29
NET LENGTH OF BRIDGES	0.000
NET LENGTH OF PROJECT	7.29
NET LENGTH OF EXCEPTIONS	1.25
GROSS LENGTH OF PROJECT	8.54

PREPARED BY: HNTB

3715 NORTHSIDE PARKWAY, NW
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327

PLANS COMPLETED XX-XX-20XX	
REVISIONS (DATE AND SHEET NO.)	

SCALE IN FEET: 0 1000 2000 4000

THE DATA, TOGETHER WITH ALL OTHER INFORMATION SHOWN ON THESE PLANS OR IN ANYWAY INDICATED THEREBY, WHETHER BY DRAWINGS OR NOTES, OR IN ANY OTHER MANNER, ARE BASED UPON FIELD INVESTIGATIONS AND ARE BELIEVED TO BE INDICATIVE OF ACTUAL CONDITIONS. HOWEVER, THE SAME ARE SHOWN AS INFORMATION ONLY, ARE NOT GUARANTEED, AND DO NOT BIND THE DEPARTMENT OF TRANSPORTATION IN ANY WAY. THE ATTENTION OF BIDDER IS SPECIFICALLY DIRECTED TO SUBSECTIONS 102.04, 102.05, AND 104.03 OF THE SPECIFICATIONS.

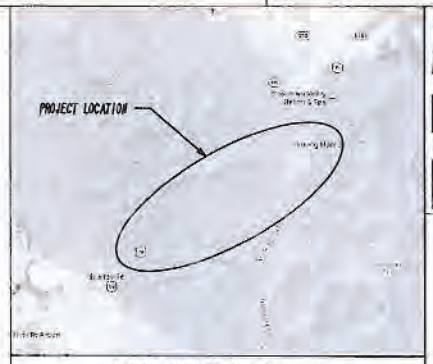
		COUNTY: TOWNS & UNION	PROJECT NUMBER	SHEET NO.

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

PLAN AND PROFILE OF PROPOSED
SR 515 & 2/US 76 WIDENING
FROM BLAIRSVILLE TO YOUNG HARRIS

PROJECT NO. APD00-0056-02(029)
PI NO. 122900
TOWNS & UNION COUNTIES

FEDERAL ROUTE 76
STATE ROUTE 515 & 2
P.I. NO. 122900



LOCATION SKETCH

AND

LOCATION & DESIGN
APPROVAL DATE: XX/XX/20XX

SR 515 FUNCTIONAL CLASS:
RURAL PRINCIPAL ARTERIAL, 55 MPH

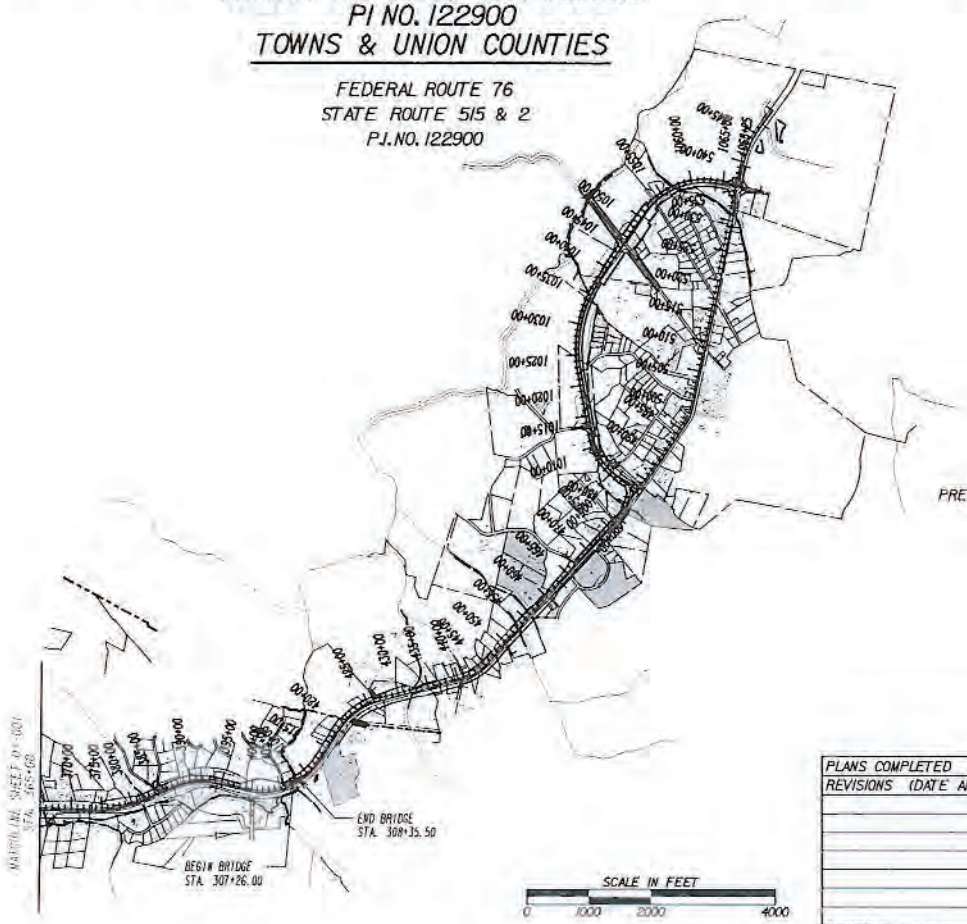
THIS PROJECT IS LOCATED IN
TOWNS & UNION COUNTIES

PROJECT DESIGNATION:
DESIGNED IN ENGLISH UNITS.

THIS PROJECT HAS BEEN PREPARED USING THE HORIZONTAL GEORGIA COORDINATE SYSTEM OF 1994 (NAD 1983)/94 WEST ZONE, AND THE NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.

DESIGN DATA:	
TRAFFIC A.D.T.:	17000 (2010)
TRAFFIC A.D.T.:	19100 (2019)
TRAFFIC A.D.T.:	34500 (2039)
TRAFFIC D.H.V.:	1850
DIRECTIONAL DIST.:	50%
% TRUCKS:	13%
24 HR. TRUCKS %:	14%
SPEED DESIGN:	55 MPH
SU:	12%
COMB:	2%

LENGTH OF PROJECT	TOWNS COUNTY COUNTY No. 281 UNION COUNTY COUNTY No. 291 Project No. 122900
	MILES
NET LENGTH OF ROADWAY	7.29
NET LENGTH OF BRIDGES	0.000
NET LENGTH OF PROJECT	7.29
NET LENGTH OF EXCEPTIONS	1.25
GROSS LENGTH OF PROJECT	8.54



PREPARED BY:

HNTB
3715 NORTHSIDE PARKWAY, NW
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327

PLANS COMPLETED XX-XX-20XX	
REVISIONS (DATE AND SHEET NO.)	

Preconstruction Status Report

PI Number: 122900- **SR 515/2/US 76 FM E BLAIRSVILLE TO YOUNG HARRIS BP@CL/CORR A**

COUNTY:	Union	MPO:	Not Urban	PRIORITY CD:	
LENGTH (MI):	5.87	TIP #:		DOT DIST:	1
PROJ NO:	APD00-0056-02(029)	MODEL YR:		CONG. DIST:	9
PROJ MGR:	Adewale, Steve	TYPE WORK:	Widening	BIKE:	N
AOHD INITIALS:	AVS	CONCEPT:		MEASURE:	E
OFFICE:	Program Delivery	PROG TYPE:	Reconstruction/Rehabilitation	SUFF:	
CONSULTANT:	Consultant Design (DOT contract)	BOND PROJ:			
SPONSOR:	GDOT	DESIGN FIRM:	HNTB Corporation		

BASELINE LET DAT		MGMT LET DATE:	3/15/17	Print Date	10/5/15
SCHED LET DATE:		MGMT ROW DATE:	9/15/15	Page	1
LIGHTING TYPE:	None	WHO LETS?	GDOT Let		
		LET WITH:			

BASE START	BASE FINISH	TASKS	ACTUAL START	ACTUAL FINISH	%
8/3/10	8/8/12	Concept Development Summary	8/3/10		97
11/30/11	11/30/11	Concept Meeting	11/30/11	8/21/14	100
6/25/12	6/25/12	PM Submit Concept Report			0
8/8/12	**8/8/12**	**Management Concept Approval Complete**			**0**
6/15/12	11/15/12	VE Study Summary	1/13/15		87
5/5/11	5/5/11	Public Information Open House Held	5/5/11	5/5/11	100
2/11/11	5/23/14	Environmental Summary	2/11/11		28
7/11/11	3/21/14	Pub Hear Held/Com Resp (EA/FONSI, GEPA)			0
8/30/10	12/12/12	Database Summary	8/30/10		99
12/13/12	6/20/13	Preliminary Roadway Plans	7/22/14		0
2/12/13	9/13/13	Preliminary Bridge Design Summary	8/17/15		95

Phase	Approved	Proposed	Cost	Fund	Status	Date Auth
PE	1999	1999	$3,981,588.47	Q98	AUTHORIZED	11/16/98
PE	2014	2014	$620,000.00	L980	AUTHORIZED	11/16/98
ROW	2016	2017	$25,960,000.00	L980	PRECST	
CST	2017	2020	$51,050,364.00	L980	PRECST	
UTL	2017	2020	$2,528,500.00	L980	PRECST	

COST EST AMTS

PE	$4,601,588.47	4/9/13
ROW	$25,960,000.00	9/26/14
CST	$51,050,364.00	9/26/14
UTL	$2,528,500.00	9/26/14

STIP AMOUNTS

Activity	Cost	Fund
PE	$500,000.00	L980
PE	$0.00	Q98
ROW	$32,275,000.00	L980
CST	$17,161,000.00	L980
UTL	$0.00	L980

Bridge:	STB 9/28/15 HNTB 95% PL
Design:	SH|SA: HNTB (TurnKey)
EIS:	WillMissFY16RW WillCertBy01Dec16 | EA | Not Apvd | O'Hara/Bromberg 24Sept15
EMG:	RECST/REHAB (WIDENING); FLY 6500/06 FOR STUDY; TURNKEY
Engr Services:	VE Study Aug10-13,2015.
LGPA:	NOTIFICATION LETTER SENT TO BLAIRSVILLE & UNION 12-9-10.
PDD:	LR: 6-22-98 ASSIGNED ROAD DESIGN
Planning:	ADDED PER SHIP COMMITTEE MEETING 5-98. Sections A-12,6 & A-13 APD
Programming:	CONFIRMED EXEMPT PER FHWA 6-1-2014|#4 1-2014|#5 6-2015|#6 6-2015
STIP:	Widen from 2 to 4 lanes - Provide additional capacity - reduce congestion - improve mobility-reduce crash frequency-enhance economic development - Project on GRIP corridor & State Freight Network ¿ if on GRIP/FN
Traffic Op:	KBH:SEND PLANS FOR SIGN & MKG WHEN 50% COMP 6/25/98
Utility:	OCD SUE: NEED 1st SUBMISSION SUE PLANS 12/02/2013, 7/28/2014.

District Comments

Consultant PM,Dom Saulino.(P)404-946-5745 e-mail:dsaulino@hntb.com

1.Project on schedule:No, PCRF submitted to OPC in July, 2015 to take the schedule up to letting.
MRD: 5-26-2017
MLD: 5-29-2020
Scope and Budget are good.
Budget Remaining: 49% in PE PHASE.

Pre Parcel CT	250	**Total Parcel in ROW System:**		**Cond Filed:**	**Acquired by:**	DOT	**DEEDS CT:**
Under Review		**Options Pending:**		**Relocations:**	**Acquisition MGR:**		
Released:		**Condemnations - Pend:**		**Acquired:**	**R/W Cert Date:**		

CONCEPT REPORT

ATTACHMENT 12

PRACTICAL ALTERNATIVES REPORT (PAR)

Russell R. McMurry, P.E., Commissioner

GEORGIA DEPARTMENT OF TRANSPORTATION

One Georgia Center, 600 West Peachtree Street, NW
Atlanta, Georgia 30308
Telephone: (404) 631-1000

June 24, 2015

Mr. Edward Johnson, Branch Chief
U.S. Army Corps of Engineers
Regulatory Division, Piedmont Branch
P.O. Box 528
Buford, GA 30515
ATTN: Natalie Edwards

Re: Transmittal of *Practicable Alternatives Review Report*, GDOT Project No. APD00-0056-02(029)
P.I. No. 122900, Union and Towns Counties
Reconstruction and Rehabilitation of SR 515/US 76 from CS 2898/Young Harris Street in Blairsville to CR 153/Timberline Drive in Young Harris

Dear Mr. Johnson:

Please find attached the Practicable Alternatives Review (PAR) Report for the proposed Georgia Department of Transportation (GDOT) Project No. APD00-0056-02(029), P.I. No. 122900. GDOT proposes the widening and reconstruction of State Route (SR) 515/US Route (US) 76 in Union and Towns Counties east of Blairsville from Young Harris Street (St.)/County Street (CS) 2898 to just east of Timberline Drive (Dr.)/County Road (CR) 153 in Young Harris. The total project length is approximately 8.50 miles and extends from mile post 9.74 in Union County to mile post 2.47 in Towns County. This segment of SR 515/US 76 has a functional classification of Rural Principal Arterial.

Three alignment alternatives along the existing corridor are being considered with the goal of identifying a preferred alignment that balances residential/commercial displacements as well as impacts to waters of the US, Section 4(f) properties, and other sensitive areas while accounting for costs associated with construction. The alignment alternatives were discussed at an inter-agency pre-PAR meeting, which was held on April 8, 2015. For the purposes of this PAR Report, all calculations of impacts for the alignment alternatives are based on each alternative's corridor. Avoidance and minimization efforts are not included as part of the impact summary. A summary of the alignment alternatives is presented below.

- Strategic Shift Alignment (Preferred Alternative)
  - Includes impacts to 0.67 acre of wetlands, 5,733 linear feet of streams, 125,421 square feet of non-exempt state water buffers, 4.0 acres of US Forest Service (USFS) property, and 11 Section 4(f) properties.
  - Potentially displace 17 residential and 21 commercial properties.
- Symmetrical Widening Alignment
  - Includes impacts to 0.99 acre of wetlands, 8,794 linear feet of streams, 353,044 square feet of non-exempt state water buffers, 2.6 acres of USFS property, and 14 Section 4(f) properties.
  - Potentially displace 28 residential and 39 commercial properties.
- Widen North Alignment
  - Includes impacts to 0.57 acre of wetlands, 8,548 linear feet of streams, 254,033 square feet of non-exempt state water buffers, 3.2 acres of USFS property, and 7 Section 4(f) properties.
  - Potentially displace 29 residential and 32 commercial properties.

Based on the concept design, the proposed project (preferred alternative) would impact 37 streams resulting in approximately 5,733 linear feet of impacts and five wetlands resulting in approximately 0.67 acre of impact. It is anticipated that the proposed project would require an Individual Permit.

Enclosed for your review is the PAR Report with accompanying information. If you should have any questions or need additional information, please contact Jaime Collazo at 404.631.1740 (jcollazo@dot.ga.gov) or Meghan Hedeen at 404.631.1812 (mhedeen@dot.ga.gov) at the Office of Environmental Services.

Sincerely,

Hiral Patel, P.E.
State Environmental Administrator

HP/MH/hls/jmc
Attachment

cc: Steve Adawale, GDOT PM
Richard O'Hara, GDOT NEPA Analyst
Christina Schmidt, GDOT Scheduler
Daryl Williams, GDOT ECB
Lisa Westberry, GDOT Mitigation
Sandy Lawrence, GDOT Cultural Resources
Terri Lotti, GDOT Cultural Resources
Jim Pomfret, GDOT Cultural Resources
Will Smith, EPD, E&S Unit
Jennifer Giersch, FHWA
Mark LaRue, USEPA
Carrie Straight, USFWS
Anna Yellin, GADNR WRD

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

PRACTICABLE ALTERNATIVES REVIEW REPORT

Reconstruction and Rehabilitation of SR 515/US 76 from CS 2898/Young Harris Street in Blairsville to CR 153/Timberline Drive in Young Harris

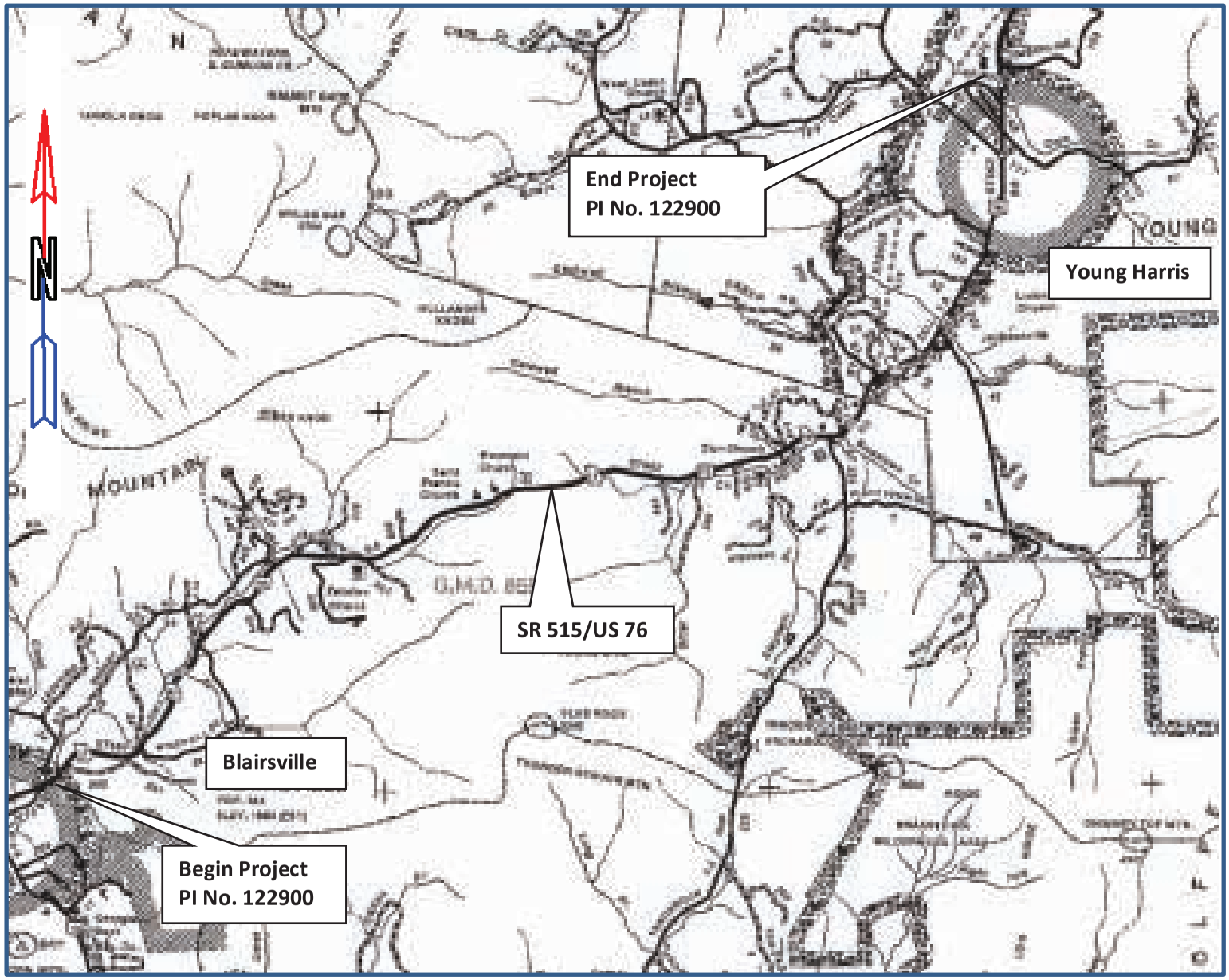
APD00-0056-02(029)
P.I. No. 122900

June 21, 2015

Attached is a copy of the Practicable Alternatives Review Report for your review and comment.

Distribution:
GADNR Environmental Protection Division
GADNR Wildlife Resources Division
Federal Highway Administration
US Army Corps of Engineers
US Fish & Wildlife Service
US Environmental Protection Agency

FIGURE 1. PROJECT VICINITY



I. Location and Proposed Project Schedule

Georgia Department of Transportation (GDOT) Project APD00-0056-02(029) proposes the widening and reconstruction of State Route (SR) 515/US Route (US) 76 in Union and Towns Counties east of Blairsville from Young Harris Street (St.)/County Street (CS) 2898 to just east of Timberline Drive (Dr.)/County Road (CR) 153 in Young Harris (see Figure 1 – Project Vicinity). The total project length is approximately 8.50 miles and goes from mile post 9.74 in Union County to mile post 2.47 in Towns County. This segment of SR 515/US 76 has a functional classification of Rural Principal Arterial. The approximate latitude and longitude coordinates of the beginning and ending points of the project are 34.880746°, -83.953820° and 34.942902°, -83.848274°, respectively. The proposed project is located in the Hiwassee River watershed, Hydrologic Unit Code (HUC) 06020002.

The project schedule is as follows:

- Right-of-Way (ROW) acquisition start scheduled for 2017
- Construction start scheduled for 2020

II. General Project Description

Existing Design Features:

- Typical Section:
  - From Young Harris St. to Industrial Boulevard (Blvd.)/Glen Gooch Bypass, 5-lane section consisting of 2 eastbound lanes, 2 westbound lanes and center two-way left turn lane.
  - From Industrial Blvd/Glen Gooch Bypass to Memory Gardens Dr., and from Trackrock Gap Road (Rd.) to Timberline Dr., 3-lane section consisting of 1 eastbound lane, 1 westbound lane, and center two-way left turn lane.
  - From Memory Gardens Dr. to Earl Shelton Rd., 3-lane section consisting of 2 eastbound lanes and 1 westbound lane.
  - From Earl Shelton Rd. to Trackrock Gap Rd., 3-lane section consisting of 1 eastbound lane and 2 westbound lanes.
- Posted speed 35/45/55 miles per hour (mph)
- Width of right-of-way: Varies from 80 ft. to 130 ft.
- Existing Bridge (Bridge No. 291-0007-0: Bridge over Brasstown Creek):
  - 114’ x 59.50’ bridge, 2-12’ travel lanes, 1-14’ center turn lane with 8’ shoulders. Sufficiency rating is 77.38.

Proposed Design Features:

- Proposed typical section(s):
  - Four 12-foot travel lanes with a 14-foot flush median, 10-foot wide urban shoulders with 5-foot sidewalk on each side of the roadway from the beginning of the project at CS 2898/Young Harris St. to ¼ mile east of Industrial Boulevard (Blvd.)/CR 302 in Blairsville, and from ¼ mile west of Plottown Road (Rd.) to a proposed roundabout at Brasstown Creek Rd.
  - Four 12-foot wide travel lanes with a 32-foot wide depressed median, 10-foot wide outside rural shoulders with 6-foot 6 inches paved, and 6-foot inside rural shoulders with 2-foot paved from ¼ mile east of Industrial Blvd./CR 302 in Blairsville to ¼ mile west of Plottown Rd. in

Young Harris.
    - Two 12-foot wide travel lanes with 10-foot wide outside rural shoulders with 6-foot 6 inches paved along a proposed bypass from proposed roundabout at Brasstown Creek Rd. to a second proposed roundabout at Timberline Dr. in Young Harris.
- Proposed Design Speed Mainline 45/55 mph
- Proposed Design Speed Bypass 35 mph
- Proposed Maximum grade Mainline 6 %
- Right-of-way:
    - Width 80 – 250 ft.
    - Easements: Temporary (X) Permanent (X) Utility ( ) Other (X).
    - Number of parcels: 168+/-
- Proposed Bridge (Bridge over Brasstown Creek – 2nd bridge):
    - 109.5' x 39.25' bridge, 2-12' travel lanes, with 8' outside and 4' inside shoulders

III. Need and Purpose

The need and purpose for the improvements along SR 515/US 76 is to address current and future capacity deficiencies as well as reduce the crash and injury rates along the corridor.

The SR 515/US 76 corridor serves as a north-south roadway traveling from the Cherokee/Pickens County line to the City of Blue Ridge and as an east-west roadway traveling from the City of Blue Ridge to the North Carolina State Line in Towns County. SR 515/US 76 originates at the Cherokee/Pickens County Line near the terminus of Interstate 575 (I-575)/SR 5 and travels north and east through the cities of East Ellijay, Blue Ridge, Blairsville, and Young Harris.

SR 515/US 76 is also part of Corridor A of the Appalachian Development Highway System (ADHS). The ADHS was authorized by Congress in 1965 and was designed to generate economic development in the previously isolated Appalachian region. The overall goal of the ADHS is to provide access to the region in order to stimulate economic growth.

In addition, SR 515/US 76 is a route designated as part of the Governor's Road Improvement Program (GRIP). Originally adopted in 1989 by the Georgia General Assembly, GRIP is a system of 19 proposed economic development highways in Georgia. The purpose of the GRIP system is to provide the transportation infrastructure necessary for economic growth by providing connectivity in rural areas of Georgia, opportunities for growth, effective and efficient transportation, and safer travel in rural areas.

The section of SR 515/US 76 from CS 2898/Young Harris Street in Blairsville to CR/153 Timberline Drive north of Young Harris is one of two remaining segments of the ADHS Corridor A and the GRIP Appalachian Developmental Highway (ADH) that is two lanes.

School Bus Routes

Though SR 515/US 76 does not provide direct access to any elementary, middle or high schools, bus routes from both Union County Schools (K-12) and Towns County Schools (K-12) utilize the corridor. According to the Union County Schools Director of Transportation, there are two school bus routes which utilize SR 515/US 76 in Union County. According to the Towns County Schools Transportation Director, there are four bus routes which utilize SR 515/US 76 in Towns County.

Traffic Data, Capacity, and Level of Service

Traffic volumes are anticipated to increase substantially over the next 25 years, and increased capacity is a primary purpose for the proposed project. To evaluate the severity of traffic congestion, roadways are rated for operational effectiveness using a level-of-service (LOS). LOS is a standard means of classifying traffic conditions associated with various traffic volume levels and traffic flow conditions.

Table 1, below, shows the Average Daily Traffic (ADT) and indicates the LOS in the No-Build Condition for the Existing Year (2010), Build Year (2019), and Design Year (2039) at several intersections along the SR 515/US 76 corridor between Blairsville and Young Harris. These intersections were chosen to represent the variations in traffic volumes along the corridor.

Table 1: SR 515/US 76 ADT Volumes and LOS

Location	Young Harris Street	Windy Hill Road	Union/Towns County Line	Murphy Street	Timberline Drive
ADT (vehicle per day)	16,900 (2010) 19,100 (2019) 34,500 (2039)	12,800 (2010) 14,400 (2019) 26,000 (2039)	11,600 (2010) 13,100 (2019) 23,800 (2039)	12,800 (2010) 14,400 (2019) 26,000 (2039)	12,100 (2010) 13,600 (2019) 24,600 (2039)
LOS (No-Build Condition)	C (2010) D (2019) E (2039)	C (2010) D (2019) E (2039)	C (2010) D (2019) E (2039)	E (2010) E (2019) E (2039)	E (2010) E (2019) E (2039)

The existing LOS E at the Murphy Street and Timberline Drive intersections in Young Harris is in contrast to the LOS C found along other sections of the corridor not within Young Harris. The LOS E is a result of the increased number of driveways and side streets in close proximity to each other in Young Harris. Traffic speeds are reduced associated with drivers executing turns at these driveways and onto side streets. In conjunction with the increased number of driveways and side streets, there are no passing opportunities inside the city limits of Young Harris so vehicles are unable to pass slow moving or turning traffic.

Crash Data and Analysis

Crash statistics for the most recent three-year period show a need to improve safety on the corridor. In 2011 and 2012, crash and injury rates exceeded statewide averages for rural principal arterials. In 2012, injury rates exceeded statewide averages for rural principal arterials. Not only do crash statistics evidence a need to reduce the frequency and severity of crashes, this need has the potential to magnify in the future as traffic volumes grow. The frequency and severity of crashes may also continue as a result of curvy roadway conditions and inconsistent lane configurations along the corridor.

IV. Existing verses Proposed

Existing Roadway Description (All Alternatives)

Existing Design Speed	Existing Typical Section	Existing R/W Width
35, 45 MPH	Two 12-ft. lanes, 14-ft. center two-way left turn lane with 10-ft. urban shoulders with sidewalks	Varies 80 – 100 ft.
55 MPH	Three 12-ft. lanes, with 10-ft. rural	Varies 100 – 130 ft.

Proposed Roadway Description (All Alternatives)

Proposed Design Speed	Proposed Typical Section	Proposed R/W Width
45 MPH	Four 12-ft. lanes, 14-ft. center two-way left turn lane with 10-ft. urban shoulders with sidewalks	Varies 100 – 150 ft.
55 MPH	Four 12-ft. lanes, 32-ft. depressed median with 10-ft. rural shoulders	Varies 150 – 250 ft.
35 MPH (Young Harris Bypass – Strategic and Widening North Alternatives only)	Two 12-ft. lanes, with 10-ft. rural shoulders	Varies 100 – 300 ft.

Existing Major Structures (All Alternatives)

Structure	ID #	Length (ft.)	Width (ft.)	Height (ft.)	No. of Barrels	Sufficiency Rating	Ecological Resource
Culvert	281-0001-0	85	10	6	2	66.17	PS 54
Culvert	291-0006-0	72	10	8	3	87.78	PS 8
Bridge over Brasstown Creek	291-0007-0	114	59.5	N/A	N/A	77.38	PS 52
Culvert	291-5004-0	38	10	10	3	98.77	PS 1
Culvert	291-5005-0	46	10	8	3	92.30	PS 7

Proposed Major Structures (All Alternatives)

Structure	Length (ft.)	Width (ft.)	Height (ft.)	No. of Barrels	Ecological Resource
Culvert Extension	180	10	6	2	PS 54
Culvert Replacement	72	10	8	3	PS 8
Bridge over Brasstown Creek	108	36	N/A	N/A	PS 52
Culvert Replacement	38	10	10	3	PS 1
Culvert Replacement	46	10	8	3	PS 7

V. Alternatives Considered

Four alternatives were evaluated as part of this Practicable Alternatives Review Report (PAR). They include No-Build, Strategic Shift, Symmetrical Widening, and Widening North alignments (see Attachment 1 – Alternative and Resource Location Maps). An alignment alternative on new location was deemed infeasible for the mainline widening because of local topography. The existing highway lies within a valley along its entire length. A new location alternative would encounter mountainous terrain, requiring a massive earth-moving operation well beyond what will already be necessary to construct the widening. The public input from the citizens and stakeholders of Young Harris is that they prefer a bypass around the city. Due to topography, the bypass is only feasible west of the existing SR 515/US 76.

All three PAR alignment build alternatives are located within the study area limits.

Alternative 1: Strategic Shift
Strategic Shift is a realignment and widening of the existing corridor to minimize impacts to ecology. cultural resources, and displacements. This includes a two-lane 1 ¼ mile bypass around the west side of the City of Young Harris.

Alternative 2: Symmetrical Widening
Symmetrical Widening is a widening equally along the existing roadway centerline. This does not include a bypass around the City of Young Harris but instead widens the existing 2-lane with center turn lane typical section to a 4-lane with center turn lane.

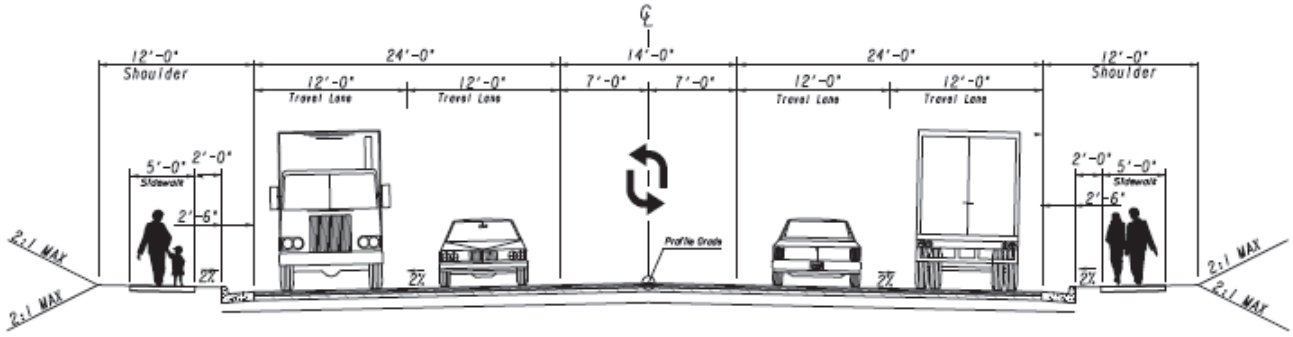
Alternative 3: Widening North
Widening North is a widening to the north of the existing travel lanes; with the existing travel lanes becoming the eastbound travel lanes and the proposed widening becoming the westbound travel lanes. This includes a two-lane 1 ¼ mile bypass around the west side of the City of Young Harris, located midway between the Strategic Shift bypass and existing SR 515/US 76.

Alternative 4: No-Build

No-Build would represent no change from existing condition. This alternative does not meet the need and purpose of the proposed project.

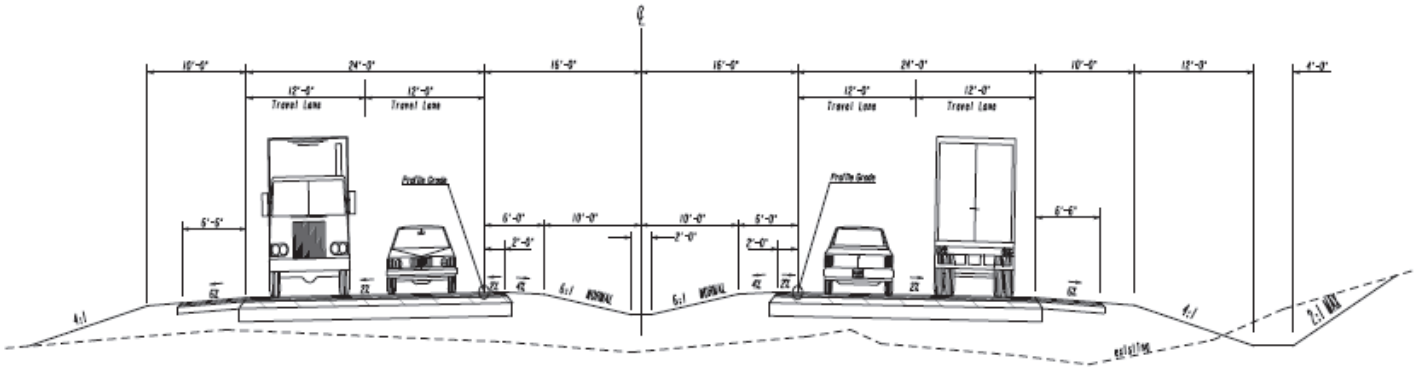
The design differences between the three build alternatives are the alignments along the entire corridor and typical sections for the Young Harris Bypass. The bypass typical sections for the Strategic Shift and the Widening North alignments would be the same two 12-foot lanes with 10-foot rural shoulders. The Symmetrical Widening alignment would match the typical section with four 12-foot lanes with 14-foot center turn lanes with 10-foot urban shoulders but does not include a bypass. For each alternative, wetland and stream impacts, non-exempt buffer impacts, threatened and endangered species impacts, relocations, and cultural resources impacts were evaluated.

The same two typical sections—one urban and one rural—were used for all three build alignments to develop an appropriate project footprint for each.



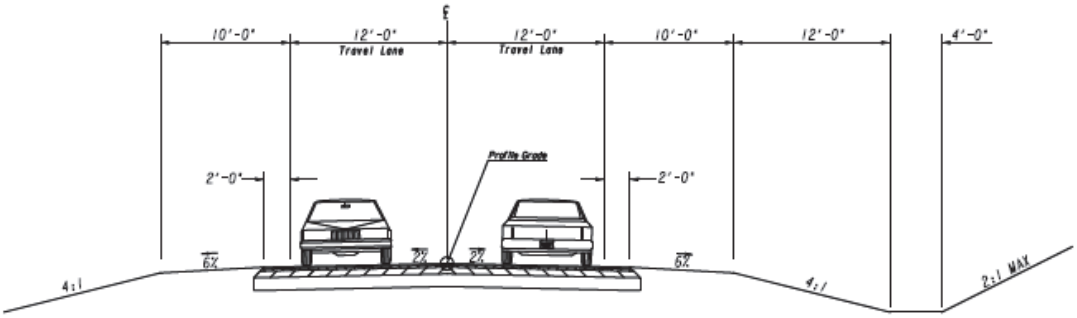
PROPOSED URBAN TYPICAL SECTION
SR 515/US 76

For the urban typical section, the distance from the centerline to the edge of travel is 31 feet, making the total travel width 62 feet. This travel width is considered the practical minimum width for the project in urban areas. In addition, a desired clear zone of 28 feet and slope tie-in distance of 16 feet for each direction of travel was also included, which sums up to a total width of 150 feet used to represent permanent construction.



PROPOSED RURAL TYPICAL SECTION
SR 515/US 76

For the rural typical section, the distance from the centerline to the edge of travel is 40 feet, making the total travel width 80 feet. This travel width is considered the practical minimum width for the project in rural areas. In addition, a desired clear zone of 32 feet and slope tie-in distance of 28 feet for each direction of travel was also included, which sums up to a total width of 200 feet used to represent permanent construction.



PROPOSED BYPASS TYPICAL SECTION
SR 515/US 76

For the Strategic Shift and Widening North alignments, a third typical section was used for the bypass around the west side of the City of Young Harris. This typical consisted of two 12-foot lanes with 10-foot rural shoulders.

VI. Potential Environmental Impacts

All environmental resource impacts reported in this PAR Report for all alignment alternatives are assumed to be permanent impacts. It is anticipated that temporary impacts would also occur along the majority of the corridor where permanent impacts to environmental resources are predicted in order to allow for equipment moving, construction, and other activities associated with the project. Each of the alternative alignment areas are discussed below.

The identification of resources are based on field delineations of waters of the US, state waters, protected species, as well as cultural resource boundaries. The impact calculations for the alignment alternatives are based on alignment corridors and would be refined and minimized, where possible, during preliminary and final design. All of the proposed alternatives occur within the range of the federally endangered gray bat (*Myotis grisescens*), the federally endangered Indiana bat (*Myotis sodalis*), and the federally threatened northern long-eared bat (*Myotis septentrionalis*). Due to suitable foraging and potentially suitable roosting habitat, an acoustic survey and mist-netting for the federally protected bats will take place in 2015. An aquatic survey was completed in July 2011. No federally protected fish species were collected. Brasstown Creek provided suitable habitat for the federal candidate species, sicklefin redhorse (*Moxtoma* sp.2).

Alternative 1, Best Fit Alternative: Strategic Shift

The **Strategic Shift** alignment generally follows closely to the existing highway. Shifts have been made on the

proposed widening and realignment so that impacts to ecological and cultural resources can be minimized. The proposed bypass around the west side of the City of Young Harris will be on new location. There will be impacts to three archaeological resources sites that require mitigation along the proposed bypass route.

The **Strategic Shift** alignment would result in impacts to approximately 0.67 acre of wetlands, 4,161 linear feet of streams, 125,421 square feet of non-exempt state water buffers, 3 archaeological resource sites (2.53 acres), 6 historic sites (1.06 acres), two cemeteries (0.57 acre), one population of protected plant species, 17 residential and 21 commercial displacements, and US Forest Service property (4.0 acres). Due to suitable foraging habitat for the three federally protected bats, stormwater management will be designed, where feasible, to avoid or minimize degradation to the streams within the project corridor.

Alternative 2: Symmetrical Widening

The **Symmetrical Widening** alignment uses the alignment of the existing highway and widens symmetrically about it. This alignment would not include a bypass around Young Harris but would instead symmetrically widen the existing highway through downtown.

The **Symmetrical Widening** alignment would result in impacts to approximately 0.99 acre of wetlands, 6,759 linear feet of streams, and 326,044 square feet of non-exempt state water buffers, 12 historic sites (3.81 acres), two cemeteries (0.5 acre), two populations of protected plant species, 28 residential and 39 commercial displacements, and US Forest Service property (2.6 acres).

Alternative 3: Widening North

The **Widening North** alignment uses the alignment of the existing highway and widens to the north. The existing lanes would convert to the eastbound lanes, and the proposed lanes to be constructed to the north would become the westbound lanes. The proposed bypass around the west side of Young Harris is still on new location but located roughly half way between the bypass alignment for the **Strategic Shift** option and the existing highway through downtown Young Harris.

The **Widening North** alignment would result in impacts to approximately 0.57 acre of wetlands, 7,681 linear feet of streams, and 254,033 square feet of non-exempt state water buffers, one archaeological resource site (0.26 acre), four historic resources (2.21 acres), two cemeteries (0.47 acre), two populations of protected plant species, 29 residential and 32 commercial displacements, and US Forest Service property (3.2 acres).

VII. Additional Considerations to Minimize Impacts

The proposed project is in the concept phase of design; the preliminary design work is not completed yet. However, during the preliminary design phase, the use of 2:1 slopes, retaining walls, bridges and bottomless culverts (where feasible), and minor shifts to avoid or minimize impacts to resources will be developed and utilized, whenever possible.

VIII. Ecological Impacts

	Alternative & Wetland Impact Area (acres)[1]		
	PAR Alternatives		
Site Number	**Strategic Shift** (Preferred)	**Symmetrical Widening**	**Widen North**
WL 5	0.18	0.07	0.22
WL 20	-	-	-
WL 24	0.13	0.36	-
WL 25	0.05	0.05	0.05
WL 32	0.01	0.15	-
WL 46	-	0.06	-
WL 49	0.30	0.30	0.30
WL 62	-	-	-
TOTAL IMPACTS	0.67	0.99	0.57

[1] No open water resources are located within the build alternative corridors.

	Alternative & Stream Impact Area (linear feet)		
	PAR Alternatives		
Site Number	**Strategic Shift Alignment** (Preferred)	**Symmetrical Widening Alignment**	**Widen North Alignment**
PS 1	-	-	164
PS 2	128	128	139
PS 6	-	56	108
PS 7	-	72	421
PS 8	-	185	185
PS 9	20	137	175
PS 10	460	581	1,427
PS 11	-	83	260
PS 13	-	402	1,035
IS 14	-	545	545
PS 14A	-	58	93
PS15	-	-	-

Site Number	Alternative & Stream Impact Area (linear feet)		
	PAR Alternatives (continued)		
	Strategic Shift Alignment (Preferred)	**Symmetrical Widening Alignment**	**Widen North Alignment**
IS 16	120	120	121
PS 17	243	244	248
EC 19	-	31	4
IS 21	202	139	164
PS 22	-	-	-
IS 23	146	143	101
EC 26	57	57	57
PS 28	90	159	131
IS 30	32	57	117
IS 31	59	36	85
PS 33	245	638	176
IS 34	-	209	120
IS 35	165	95	126
EC 36	132	47	107
PS 37	142	944	149
EC 38	-	-	-
IS 39	171	114	144
PS 41	-	-	-
PS 42	-	394	-
EC 43	-	46	99
IS 44	120	55	5
PS 45	130	291	154
IS 48A	11	-	11
IS 50	31	75	-
PS 51	-	-	-
PS 52	298	485	199
PS 53	174	289	420
PS 54	66	65	65
PS 55	31	32	59
PS 60	83	85	83
PS 61	605	-	-
PS 63	-	-	68
PS 64	-	-	-
PS 65	-	-	-
PS 66	200	147	116
TOTAL IMPACTS	4,161	7,244	7,681

	Alternative & Non-Exempt State Water Buffer Impact Area (square feet)		
	PAR Alternatives		
Site Number	**Strategic Shift Alignment** (Preferred)	**Symmetrical Widening Alignment**	**Widen North Alignment**
PS 1	-	-	5,510
PS 2	1,007	2,814	5,751
PS 6	-	-	-
PS 7	-	4,466	22,091
PS 8	-	-	-
PS 9	-	-	-
PS 10	22,998	34,654	74,067
PS 11	-	8,164	17,051
PS 13	2,412	25,091	57,656
IS 14	-	27,068	-
PS 14A	-	-	-
PS15	-	-	2,627
IS 16	-	-	-
PS 17	-	-	-
EC 19	-	-	-
IS 21	-	-	-
PS 22	-	-	-
IS 23	-	-	-
EC 26	-	-	-
PS 28	246	2,015	-
IS 30	-	2,456	-
IS 31	-	-	-
PS 33	4,914	3,932	12,698
IS 34	-	55,463	6,964
IS 35	-	-	-
EC 36	8,145	1013	6,082
PS 37	1,145	45,740	9,534
EC 38	-	-	-
IS 39	2,208	827	2,208
PS 41	-	-	290
PS 42	19,324	53,085	5,832
EC 43	-	-	-
IS 44	-	-	-
PS 45	2,541	22,036	6,362
IS 48A	-	-	-
IS 50	-	-	-
PS 51	-	29,494	-

Site Number	Alternative & Non-Exempt State Water Impact Area (square feet)		
	PAR Alternatives (continued)		
	Strategic Shift Alignment (Preferred)	**Symmetrical Widening Alignment**	**Widen North Alignment**
PS 52	15,791	27,000	11,781
PS 53	3,334	4,647	7,529
PS 54	-	-	-
PS 55	-	-	-
PS 60	-	-	-
PS 61	41,356	-	-
PS 63	-	-	-
PS 64	-	-	-
PS 65	-	-	-
PS 66	-	3,079	-
TOTAL IMPACTS	125,421	353,044	254,033

	Alternative Summary Table		
	Strategic Shift Alignment (Preferred)	**Symmetrical Widening Alignment**	**Widening North Alignment**
Length			
Total Project (miles)	8.55	8.33	8.50
Typical Section & Design Speed			
Proposed Typical - Urban	4-lane with 14-ft. center left turn lane	4-lane with 14-ft. center left turn lane	4-lane with 14-ft. center left turn lane
Proposed Typical - Rural	4-lane divided: 32-ft. depressed	4-lane divided: 32-ft. depressed median	4-lane divided: 32-ft. depressed median
Proposed Typical - Bypass	2-lane undivided	N/A	2-lane undivided
Proposed Speed- Urban	45	45	45
Proposed Speed- Rural	55	55	55
Proposed Speed- Bypass	35	N/A	35
Displacements			
Residential	17	28	29
Commercial	21	39	32
Section 4(f) Resources			
US Forest Service Property	4.0 acre (ac.)	2.6 ac.	3.2 ac.
Historic Structures	6 (1.06 ac.)	12 (3.81 ac.)	4 (2.21 ac.)
Archeology	3 (2.53 ac.)	0	1 (0.26 ac.)
Cemeteries	2 (0.57 ac.)	2 (0.50 ac.)	2 (0.47 ac.)
Section 4(f) Required?	Potential 4(f)	Potential 4(f)	Potential 4(f)
Streams			
# of Impacts	37	46	46
Total Length Impacted	5,733 linear feet	8,794LF	8,548 LF
Estimated Credits	29,127.0	47,313.0	53,767
Wetlands			
# of Impacts	5	6	3
Total Wetland Area Impacted	0.67 ac.	0.99 ac.	0.57 ac.
Estimated Credits	5.1	7.4	4.3
State Waters			
# of Non-exempt Buffer Impacts	13	18	17
Total Square Feet Impacted	125,421	353,044	254,033
Cost Estimates			
*Estimated Mitigation Cost	$2,335,668	$3,831,832	$4,306,004
Right-of-Way Estimate	$25,960,000	$29,760,000	$27,960,000
Total Cost:	$28,295,668	$33,591,832	$32,266,004

*Includes both stream and wetland mitigation credits with a cost of $80/stream credit and $1,080/wetland credit.

RECOMMENDATIONS: It is recommended that the proposed project progress the design utilizing the **Strategic Shift** alignment as the preferred alternative. This alignment meets the required need and purpose of the proposed project. It provides a safe roadway while avoiding and/or minimizing impacts to ecological resources and residential/commercial displacements. With the exception of potential Section 4(f) resource impacts, the preferred alternative has the least amount of impacts to jurisdictional streams, protected plant species populations, state protective stream buffers, displacements (residential and commercial), and it minimizes the impacts to wetlands and the anticipated cost of ROW and mitigation. Stormwater management will be designed, where feasible, to reduce sediments and pollutants prior to entering streams within the federally protected bat foraging habitat. Brasstown Creek will be bridged to avoid impacts to federally protected fish.

ATTACHMENTS: Alternative and Resource Location Maps

PREPARED BY: Heidi Schneider, HNTB Corporation

ATTACHMENT 1

Alternative and Resource Location Maps

Begin PI 122900

STREAM 1 (PER)

BUTTERNUT CREEK

STREAM 1 (PER)

NBSW 4

NBSW 3

STREAM 2 (PER)

NBSW 3

STREAM 2 (PER)

ESA-25' STREAM BUFFER

ESA-25' STREAM BUFFER

ESA-25' STREAM BUFFER

STREAM 6 (PER)

WETLAND 5

STREAM 7 (PER)

ESA-25' STREAM BUFFER

STREAM 7 (PER)

BUTTERNUT CREEK

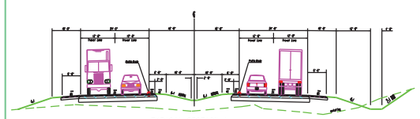
ESA-25' STREAM BUFFER

ESA-25' STREAM BUFFER

STREAM 6 (PER)

ROADWAY LEGEND

- STRATEGIC SHIFT
- WIDENING NORTH
- SYMMETRICAL WIDENING
- HISTORIC PROPERTY
- ARCHAEOLOGICAL RESOURCE LINE
- STREAM
- STREAM BUFFER
- WETLANDS
- PROTECTED PLANT POPULATION



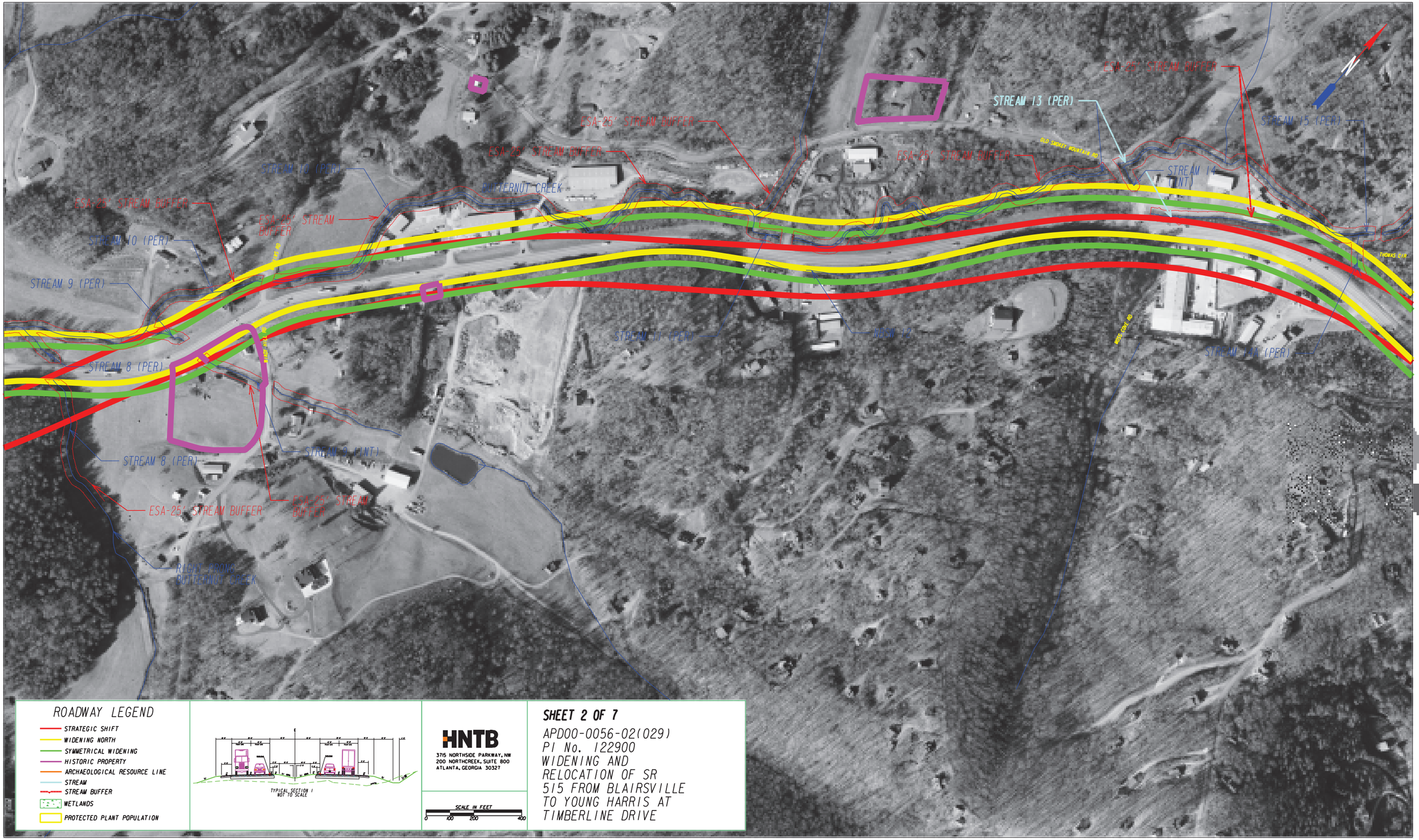
TYPICAL SECTION 1
NOT TO SCALE

HNTB
3715 NORTHSIDE PARKWAY, NW
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327

SCALE IN FEET
0 100 200 400

SHEET 1 OF 7

APD00-0056-02(029)
PI No. 122900
WIDENING AND
RELOCATION OF SR
515 FROM BLAIRSVILLE
TO YOUNG HARRIS AT
TIMBERLINE DRIVE



ROADWAY LEGEND

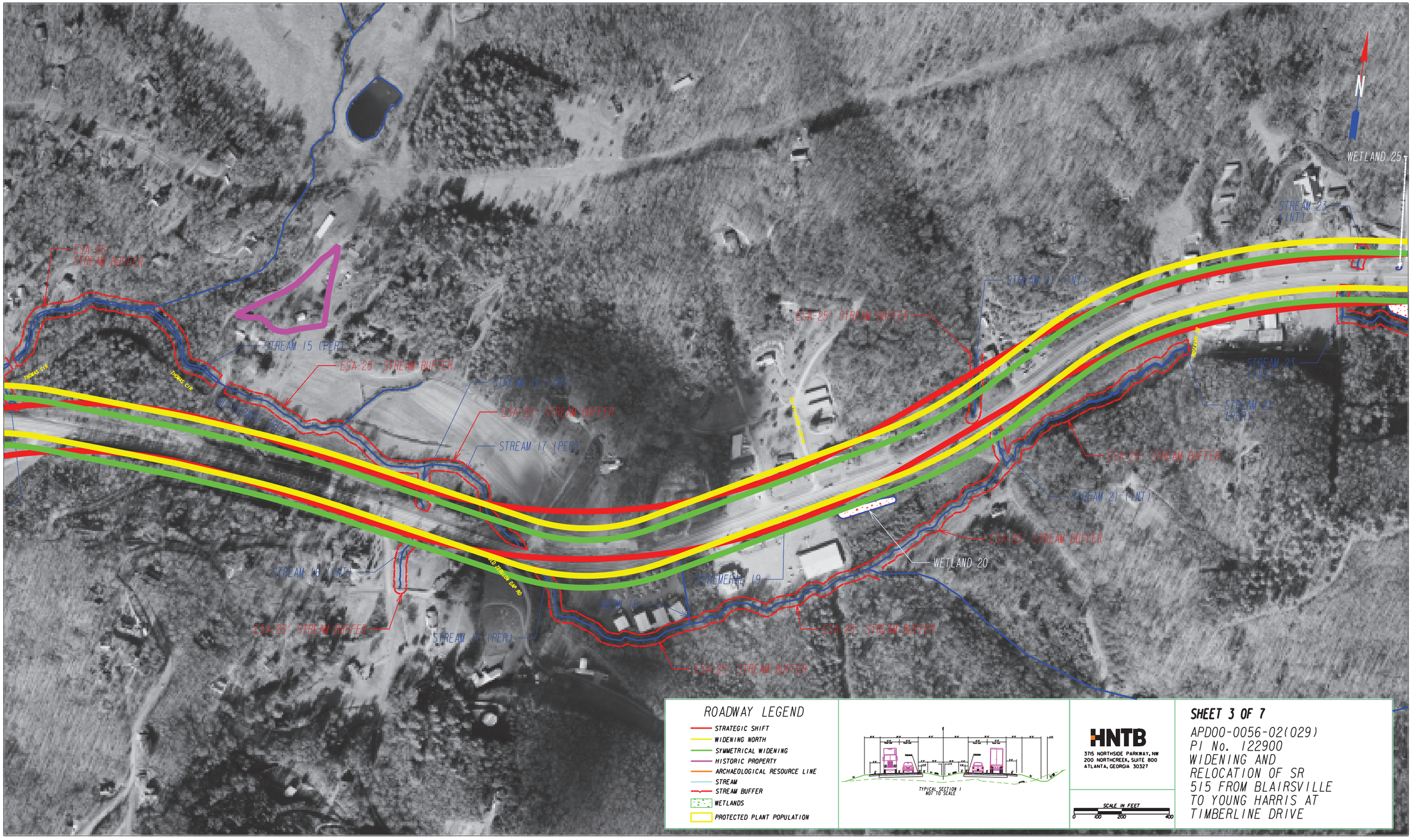
- STRATEGIC SHIFT
- WIDENING NORTH
- SYMMETRICAL WIDENING
- HISTORIC PROPERTY
- ARCHAEOLOGICAL RESOURCE LINE
- STREAM
- STREAM BUFFER
- WETLANDS
- PROTECTED PLANT POPULATION

HNTB
3715 NORTHSIDE PARKWAY, NW
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327

SCALE IN FEET
0 100 200 400

SHEET 2 OF 7

APD00-0056-02(029)
PI No. 122900
WIDENING AND
RELOCATION OF SR
515 FROM BLAIRSVILLE
TO YOUNG HARRIS AT
TIMBERLINE DRIVE



ROADWAY LEGEND

- STRATEGIC SHIFT
- WIDENING NORTH
- SYMMETRICAL WIDENING
- HISTORIC PROPERTY
- ARCHAEOLOGICAL RESOURCE LINE
- STREAM
- STREAM BUFFER
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- PROTECTED PLANT POPULATION

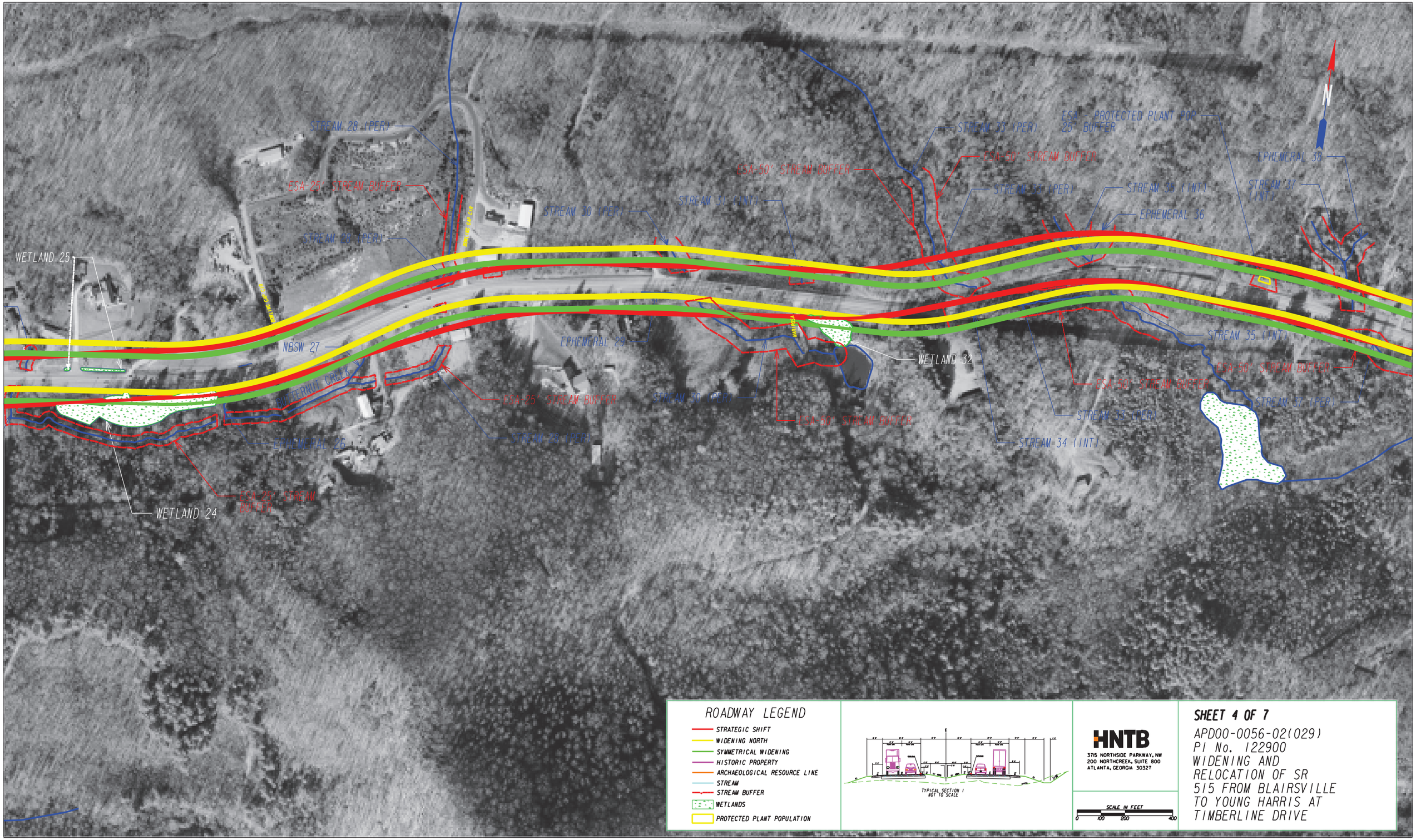
TYPICAL SECTION 1
NOT TO SCALE

HNTB
3715 NORTHSIDE PARKWAY, NW
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327

SCALE IN FEET
0 100 200 400

SHEET 3 OF 7

APD00-0056-02(029)
PI No. 122900
WIDENING AND
RELOCATION OF SR
515 FROM BLAIRSVILLE
TO YOUNG HARRIS AT
TIMBERLINE DRIVE



ROADWAY LEGEND

- STRATEGIC SHIFT
- WIDENING NORTH
- SYMMETRICAL WIDENING
- HISTORIC PROPERTY
- ARCHAEOLOGICAL RESOURCE LINE
- STREAM
- STREAM BUFFER
- WETLANDS
- PROTECTED PLANT POPULATION

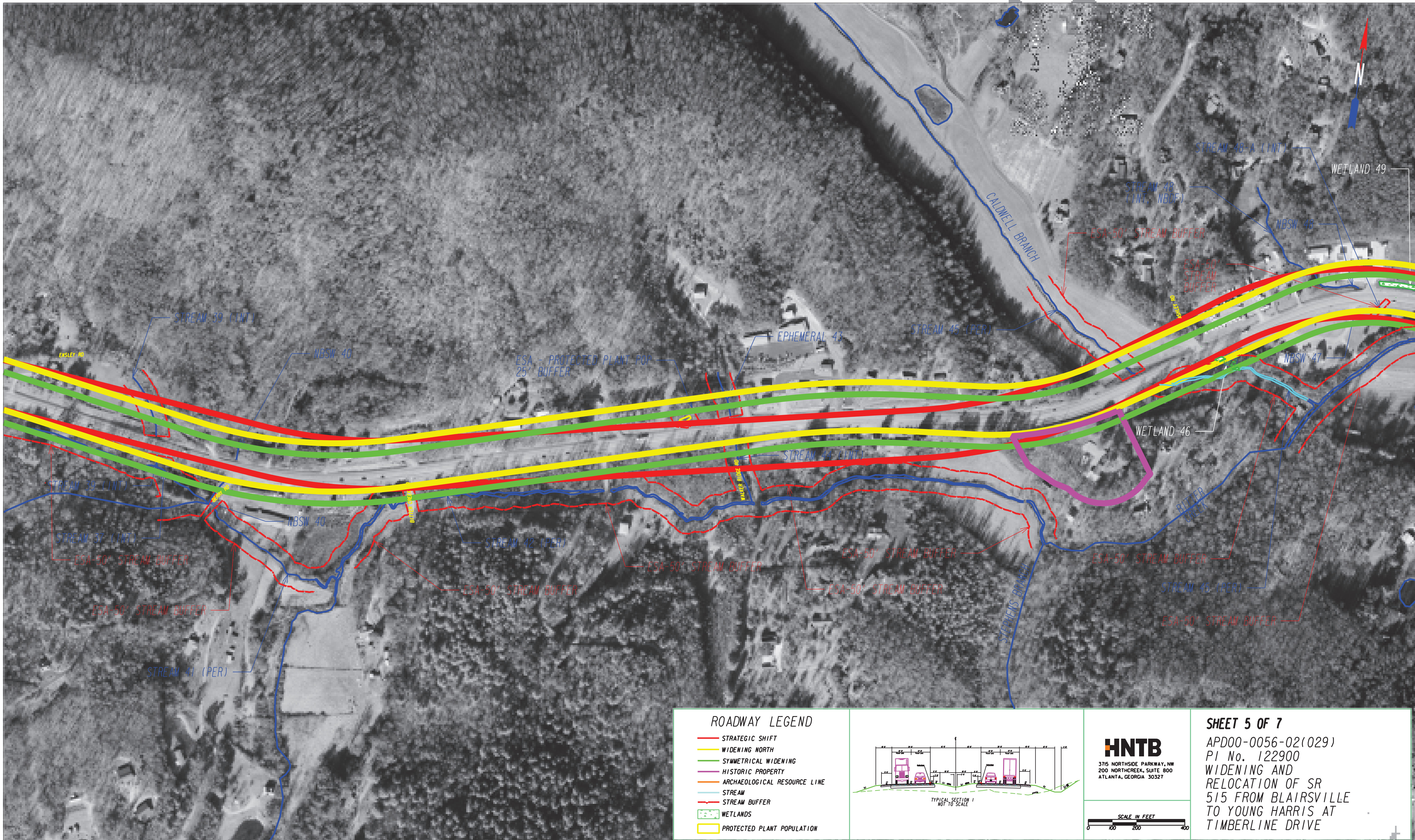
TYPICAL SECTION 1
NOT TO SCALE

HNTB
3715 NORTHSIDE PARKWAY, NW
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327

SCALE IN FEET
0 100 200 400

SHEET 4 OF 7

APD00-0056-02(029)
PI No. 122900
WIDENING AND
RELOCATION OF SR
515 FROM BLAIRSVILLE
TO YOUNG HARRIS AT
TIMBERLINE DRIVE



ROADWAY LEGEND

- 🟥 STRATEGIC SHIFT
- 🟨 WIDENING NORTH
- 🟩 SYMMETRICAL WIDENING
- HISTORIC PROPERTY
- ARCHAEOLOGICAL RESOURCE LINE
- STREAM
- STREAM BUFFER
- WETLANDS
- PROTECTED PLANT POPULATION

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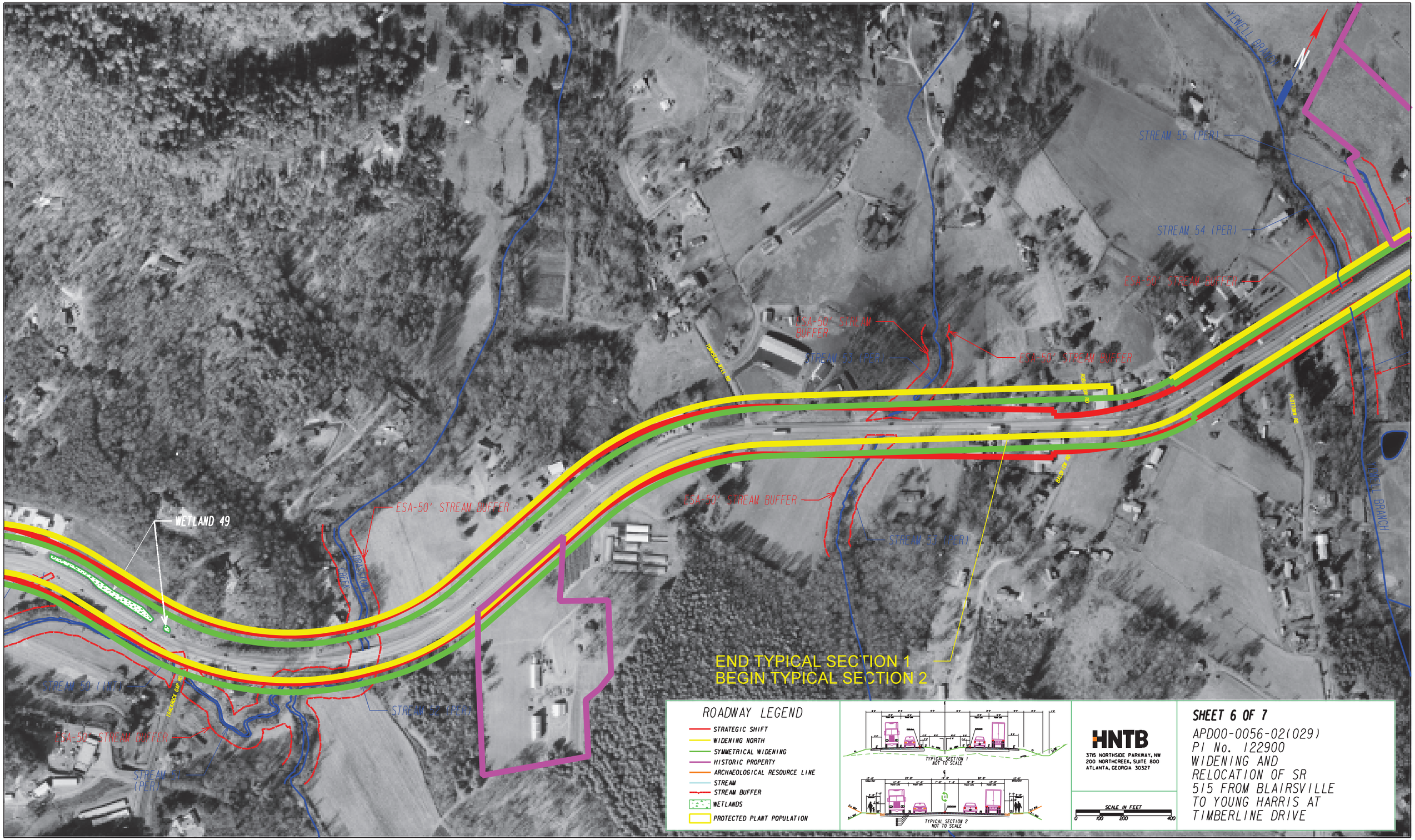
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327

SHEET 5 OF 7

APD00-0056-02(029)
PI No. 122900
WIDENING AND RELOCATION OF SR 515 FROM BLAIRSVILLE TO YOUNG HARRIS AT TIMBERLINE DRIVE



ROADWAY LEGEND

- STRATEGIC SHIFT
- WIDENING NORTH
- SYMMETRICAL WIDENING
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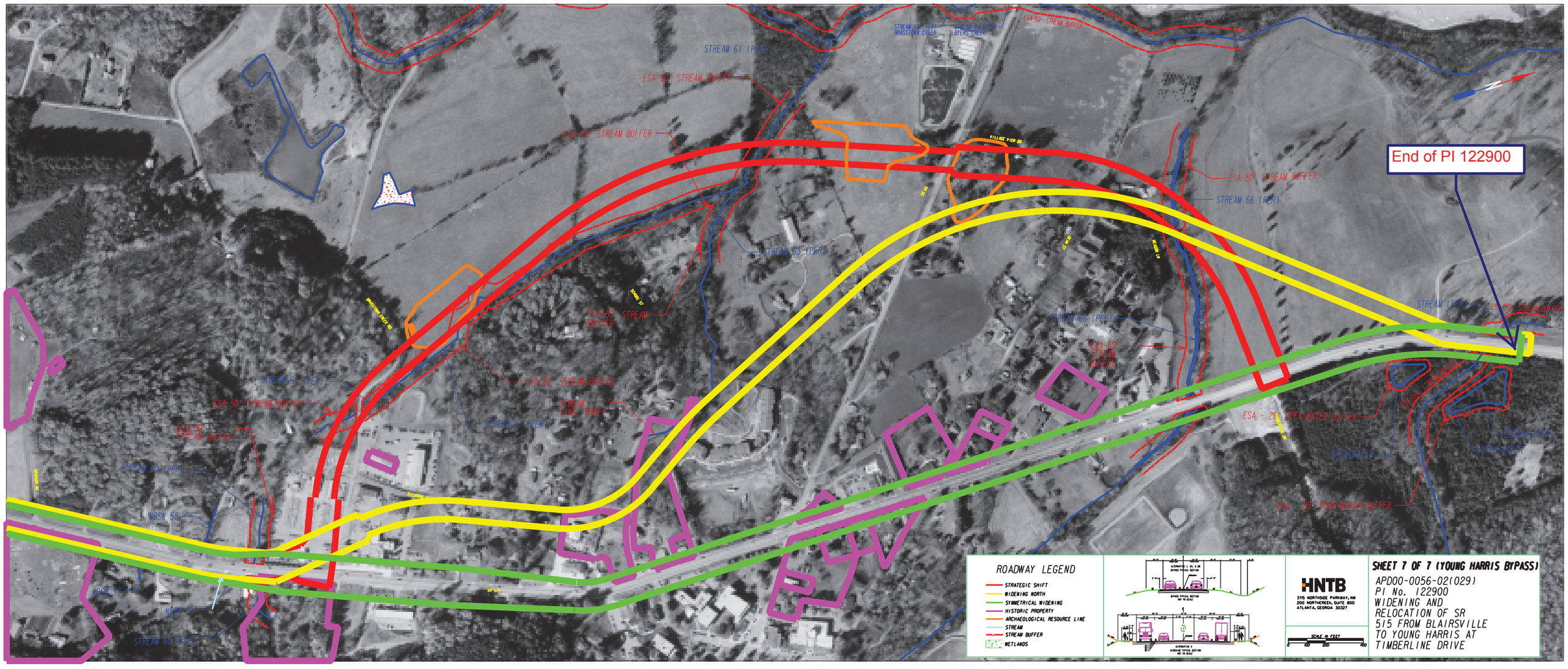
HNTB
3715 NORTHSIDE PARKWAY, NW
200 NORTHCREEK, SUITE 800
ATLANTA, GEORGIA 30327

SCALE IN FEET
0 100 200 400

SHEET 6 OF 7

APD00-0056-02(029)
PI No. 122900
WIDENING AND
RELOCATION OF SR
515 FROM BLAIRSVILLE
TO YOUNG HARRIS AT
TIMBERLINE DRIVE



SHEET 7 OF 7 (YOUNG HARRIS BYPASS)

APD00-0056-02(029)
PI No. 122900
WIDENING AND
RELOCATION OF SR
515 FROM BLAIRSVILLE
TO YOUNG HARRIS AT
TIMBERLINE DRIVE

CONCEPT REPORT

ATTACHMENT 13

PAVEMENT TYPE SELECTION MEMO

HNTB Corporation
Engineers Architects Planners

3715 Northside Parkway, NW
200 Northcreek, Suite 800
Atlanta, GA 30327

Telephone (404) 946-5700
Facsimile (404) 841-2820
www.hntb.com

Mr. Steve Adewale
Office of Program Delivery
Georgia Department of Transportation
One Georgia Center
600 West Peachtree NW
Atlanta, Georgia 30308

November 19, 2015
Re: SR 515/US 76 widening; Towns and Union Counties (PI 122900)

Dear Mr. Adewale,

This memo is intended to provide justification as to why an Initial Pavement Type Selection Report (PTS) is not required for the SR 515/US 76 widening project in Towns and Union Counties (PI 122900).

GDOT's Plan Development Process (PDP) Manual (Page 5-9) includes five (5) scenarios when an initial PTS report is not required. This project meets two (2) scenarios as noted below:

- *when a portion of an existing pavement is being replaced in kind; and*
- *when the new construction will add lane(s) tying directly into an existing lane that does not require reconstruction.*

On this project the existing mainline pavement within the project limits is hot-mix asphalt (HMA). According to the draft Pavement Evaluation Summary (PES) developed by United Consulting and submitted to OMAT on 11/3/2015, approximately 73% of the length of the existing HMA pavement is suitable to be retained. The remaining 27% of existing HMA is proposed to be replaced in-kind.

Although the project includes a short bypass on new alignment and slight alignment modifications along the rural sections, the vast majority of existing HMA will be retained. This includes widening of the 1.5 mile urban section in Blairsville and Young Harris.

We will provide a response to the concept report comment related to this subject, and retain this memo for the project files.

Best regards,

Christopher Seckinger, PE
Project Manager
cseckinger@hntb.com
(404)946-5733

cc: Project File

CONCEPT REPORT

ATTACHMENT 14

PAVEMENT EVALUATION SUMMARY

REPORT

Pavement Evaluation Summary

APD00-0056-02(029)
P.I. No. 0122900
SR 2/ SR 515
Blairsville to
Young Harris
Union and Towns Counties
Georgia

Project Number
2014.5279.01

October 16, 2015
Revised
December 18, 2015

We're here for you
UNITED CONSULTING

We're here for you
UNITED CONSULTING

October 16, 2015
Revised December 18, 2015

Mr. Christopher Seckinger, P.E.
HNTB Corporation
3715 Northside Parkway, NW
200 Northcreek, Suite 800
Atlanta, Georgia 30327

Via Email: cseckinger@HNTB.com

RE: Report of Pavement Evaluation Summary
APD00-0056-02(029), P.I. No. 0122900
SR 2/ SR 515 - Blairsville to Young Harris
Union and Towns Counties, Georgia
UC Project No. **2014.5279.01**

Dear Mr. Seckinger:

United Consulting is pleased to submit this revised report of the Pavement Evaluation Summary for the above referenced project site. This revision is based on Interdepartmental Correspondence dated December 14, 2015 by the Georgia Department of Transportation Geotechnical Environmental Pavement Bureau (GEP). We appreciate the opportunity to assist you with this project and look forward to working with you on future projects. If you have any questions regarding this report, or if we can of further assistance, please feel free to contact us.

Sincerely,

UNITED CONSULTING

Ray E. Halbert, P.E.
Senior Geotechnical Engineer

GEORGIA REGISTERED No. 20064 PROFESSIONAL ENGINEER SANTANU SINHAROY

Santanu Sinharoy, P.E.
Chief Geotechnical Engineer
Registration No. 20064

REH/SS/nj

http://ucblade10/sites/Geotechenv/5991/2014.5279.01/Geotechnical Documents/2014.5279.01 PES/2014.5279.01 PES Rev 12-18-15.doc

Revised December 18, 2015

PAVEMENT EVALUATION SUMMARY

For

APD00-0056-02(029), Union and Towns Counties, Georgia
PI No. 0122900

1. *LOCATION / DESCRIPTION*

This project is for the roadway improvement of SR 2/ SR 515 from west of the intersection with Industrial Boulevard and terminates at Timberlake Drive in Young Harris. Georgia. The proposed improvement will consist of four-lane widening and realignment with curb, gutter and sidewalks. The total length of the project is approximately 8.75 miles. This project is located within the following station limits based on the preliminary drawings provided at the time of this survey.

Station to Station	Location
0+00± to 390+48.24±	SR 2/ SR 515
1000+00± to 1070+39.64	SR 515 Bypass

2. *PAVEMENT CONDITION SUMMARY*

SR 2/ SR 515

The existing pavement for SR 2/ SR 515 is in good to fair condition based on the latest COPACES ratings in 2014 and on the findings of our field observation. The pavement distresses and core conditions from this evaluation are summarized in Section 6 and Section 8 of this report.

Side Roads

No pavement evaluation was performed on the side roads, however, some minor distresses were observed during the field survey. See Appendix H for details.

3. *PAVEMENT RECOMMENDATION SUMMARY*

The following types of construction are recommended along the roadway improvement for SR 2/ SR 515 and associated Side Roads.

Road	Station to Station	Description	Recommendation
SR 2/ SR 515	0+00± to 7+00±	Exist/ Widening	Mill/ Inlay, Full Depth Construction for widening
	7+00± to 48+00±	Exist/ Widening/ New Alignment	Full Depth Replacement-poor core condition, Full Depth Construction for widening /New Alignment
	48+00± to 63+00±	Exist/ Widening/ New Alignment	Mill/ Overlay , Full Depth Construction for widening/ New Alignment
	63+00± to 79+00±	Exist/ Widening	Full Depth Replacement-poor core condition, Full Depth Construction for widening
	79+00± to 145+00±	Exist/ Widening/ New Alignment	Mill/ Overlay , Full Depth Construction for widening/ New Alignment
	145+00± to 190+00±	Exist/ Widening/ New Alignment	Full Depth Replacement-poor core condition, Full Depth Construction for widening /New Alignment
SR 2/ SR 515	190+00± to 209+00±	Exist/ Widening	Mill/ Overlay Construction-Mill 3.5 inches, Full Depth Construction for widening
	209+00 to 350+00±	Exist/ Widening/ New Alignment	Mill/ Overlay , Full Depth Construction for widening/ New Alignment
	350+00± to 360+00±	Exist/ Widening	Mill/ Overlay Construction-Mill 3.0 inches, Full Depth Construction for widening
	360+00± to 390+48.24±	Exist/ Widening	Mill/ Overlay Construction, Full Depth Construction for widening
SR 515 Bypass	1000+00± to 1070+39.64	New Alignment	Full Depth Construction
All Side Roads*	Various	Exist/ Widening	Mill/ Inlay/ Overlay Construction, Full Depth Construction for widening

- * Evaluation and/ or design of all side roads are beyond our scope of work.

Notation:

Mill/Inlay/Overlay Construction = Existing roadway, inlay/overlay conditions are acceptable.
Full Depth Construction = Widening, new roadway and/or alignment.

Full Depth Reconstruction = Existing roadway pavement is acceptable for overlay; however, the roadway is not part of the functional roadway. This section can remain in place, if desired.

Full Depth Replacement = Existing Roadway pavement cannot accommodate overlay due to either the existing effective structural number/ due to new profile or due to other factors. Extension of the main line Full Depth Construction to the turnouts of the side roads is recommended. See **Section 11, "Assumption and Justifications"** section for details.

4. *FULL-DEPTH SECTIONS*

The following full-depth pavement structures are recommended for use on this project.

Full-Depth Design

SR2/ SR 515 / SR 515 Bypass				
PAY ITEM NUMBER	MATERIAL	COURSE	THICKNESS	SPREAD RATE
402-3130	12.5 mm Superpave	Surface	1.50 inches	165 lbs/yd^2
402-3190	19 mm Superpave	Binder	2.00 inches	220 lbs/yd^2
402-3121	25 mm Superpave	Asphalt Base	7.00 inches	770 lbs/yd^2
310-1101	Graded Aggregate Based	Base	14.00 inches	N/A

Note: Full Depth Design includes SR 2/ SR 515 from Station 7+00 to Station 390+48.24 and proposed SR 515 Bypass Section from Station 1000+00 to Station 1070+39.64.

5. *OVERLAY SECTIONS*

The following mill and overlay pavement structures are recommended for use on this project.

SR 2/ SR 515 Mill and Inlay Design**

Sta. 0+00± to 7+00±				
Pay Item Number	Material	Course	Thickness	Spread Rate
402-3130	12.5 mm Superpave	Surface	1.50 inches	165 lbs/yd^2

** Mill 1.50 inches. Additional quantities should be set up for extra depth milling.

SR 2/ SR 515 Mill and Overlay Design

Sta. 7+00± to 48+00±
Mill and Overlay not recommended for this section

SR 2/ SR 515 Mill and Overlay Design*

Sta. 48+00± to Sta. 63+00± Sta. 79+00± to Sta. 145+00± Sta. 190+00± to Sta. 390+48.24±				
Pay Item Number	**Material**	**Course**	**Thickness**	**Spread Rate**
402-3130	12.5 mm Superpave	Surface	1.50 inches	165 lbs/yd^2
402-3190	19 mm Superpave	Binder	2.00 inches	220 lbs/yd^2
402-3121	25 mm Superpave	Asphalt Base	5.00 inches	550 lbs/yd^2

*Mill 1.50 inches. Additional quantities should be set up for extra depth milling.
*Mill 3.50 inches from Station 190+00 to Station 209+00.
*Mill 3.00 inches from Station 350+00 to Station 360+00.

Please refer to Section 10 "**Additional Recommendations**" and Section 11"**Assumptions and Justifications**" section of the report.

6. *PAVEMENT DISTRESSES*

Except for the following, no other significant distresses were encountered during the field exploration of this project:

Rutting On **SR 2/ SR 515,** the maximum rutting observed was 1 inch within the evaluated sections near Station 7+20.

Load Cracking On **SR 2/ SR 515,** predominantly Level 1, occasional Level 2 and scattered Level 3 and 4 load cracking was observed within the evaluated sections.

Block/ Transverse Cracking On **SR 2/ SR 515,** predominantly Level 1, occasional Level 2 and scattered Level 3 block/transverse cracking was observed within the evaluated sections.

Edge Distress On **SR 2/ SR 515,** predominantly Level 1 and Level 2 edge distress cracking was observed with the evaluated sections.

Raveling On **SR 2/ SR 515,** Level 1 raveling distress was observed at a few isolated locations but the area was predominantly free of raveling.

Patches, Potholes, and Local Base Failures On **SR 2/ SR 515,** patches, potholes or local base failure was observed at isolated locations along the evaluated area.

7. COPACES

COPACES ratings are based on a visual survey of surface distress of the pavement. The Georgia Department of Transportation conducted COPACES rating on the stretch of SR 2/SR 515 between Mile Marker, (MM) 10 and MM 15.76. In 2014, the ratings for SR 2/SR 515 for these segment from MM 9.79 to MM 15.85 ranged from 70% to 74%.

United Consulting conducted a pavement evaluation from March 23 to April 3, 2015, using the criteria outlined in Appendix E of the Pavement Design Manual. United Consulting obtained multiple reading within the pavement sections evaluated and averaged the rating based on the number of locations. For SR 2/ SR 515 the pavement sections evaluated averaged as follows:

- From MM 9.75 (Sta. 0+00±) to MM 11 (Sta. 66+00±), Union County = 76
- From MM 11 (Sta. 66+00±) to MM 15.85 (Sta. 118+50±), Union County = 73
- From MM 12 (Sta. 118+50±) to MM 13 (Sta. 171+50±), Union County = 63
- From MM 13 (Sta. 171+50±) to MM 14 (Sta. 224+00±), Union County = 65
- From MM 14 (Sta. 224+00±) to MM 15 (Sta. 277+00±), Union County = 70
- From MM 15 (Sta. 277+00±) to MM 15.85 (Sta. 316+81±), Union County = 70
- From MM 0 (Sta. 316+81±) to MM 1.20 (Sta. 380+00±), Towns County= 60

See **Appendix F** for details.

8. CORES

Cores were recovered from twenty-seven (27) separate locations in the travel lanes of this project to determine the thicknesses and condition of the existing pavement sections. The results of the coring operation are tabulated below:

Core/ Sample Number	Location in degrees SR 2/ SR 515	Station/Direction/ Location	Asphalt Core Length (inches)	Core Condition	Underlying Material Type/ Thickness
1	N34.88093 W83.95282	2+00 EB, LN 1, PW, 20.0' RT	11.25	Good. No visible stresses. Minor air voids at 7.5".	GAB=18.00"
2	N34.88104 W83.95278	2+00 EB, LTL, PW, 7.5' RT	11.50	Good. No visible stresses.	GAB=24.00"
3	N34.88112 W83.95284	2+00 WB, LN 2, PW, 23.0' LT	11.50	Good. No visible stresses.	GAB=24.00"
4	N34.88171 W83.95143	7+00 EB, RTL, PW, 23.5' RT	8.00	Good. No visible stresses.	GAB=14.50"
5	N34.88203 W83.95119	8+20 EB, LN 1, DW, 3.0' RT	23.00	Good. Delamination at 16.0", Heavy tar. Air voids	GAB=8.00"/ Sand/Clay soil

Core/ Sample Number	Location in degrees SR 2/ SR 515	Station/Direction/ Location	Asphalt Core Length (inches)	Core Condition	Underlying Material Type/ Thickness
				at 5".	
6	N34.90383 W83.39136	8+20 EB, LN 1, PW, 8.5' RT	19.50	Good. Delamination at 15.75", Heavy tar. Air voids at 5".	GAB=8.00"/ Sand/Clay soil
7	N34.90383 W83.39136	8+40 EB, LN 1, PW, 8.0' RT	16.75	Good. Light tar. Air voids at 4".	GAB=4.25+ AR @ 21"
8	N34.88220 W83.95103	8+95 WB, LTL, DW, 2.5' LT	10.25	Good. Minor air voids at 4" and 10".	GAB=8.00 Sand/ Clay soil
9	N34.88224 W83.95105	8+95 WB, LTL, PW, 8.5' LT	10.00	Good to Fair: Air voids at 3.5".	GAB=8.00 Sand/ Clay soil
10	N34.88297 W83.94767	20+00 EB, LN 1, DW, 3.5' RT	9.50	Poor. Vertical crack 9.50", Delamination between 4" and 6".	GAB=11.25" Sand/ Clay soil
11	N34.88474 W83.94257	38+00 WB, LN 1, PW, 9.0' LT	9.00	Poor. Vertical crack 9.00", Delamination at 1.75".	Compacted Sand/Gravel= 10.25"
12	N34.89272 W83.93649	73+00 EB, LN 2, PW, 21.5' RT	10.00	Good. No visible stresses.	GAB=7.00 Sand/ Clay soil
13	N34.89281 W83.93652	73+00 WB, LN 1, PW, 9.0' LT	9.50	Fair. Vertical crack 9.50", Delamination at 1.25", Rubble asphalt pieces from 1.25" to 2.00".	Compacted Sand/Gravel= 8.00"
14	N34.90043 W83.92041	133+00 EB, LN 1, PW, 8.0' RT	10.25	Good. No visible stresses.	Compacted Sand/Gravel= 9.25"
15	N34.90062 W83.91481	150+00 EB, LN 2, PW, 21.0' RT	7.50	Fair. Vertical crack 7.50".	Compacted Sand/Gravel= 6.00"
16	N34.90467 W83.90651	178+70 EB, LN 2, PW, 20.5' RT	6.25	Poor. Vertical crack 6.25", Delamination at 1.75".	GAB=10.50"
17	N34.90476 W83.90617	179+50 EB, LN 1, PW, 8.5' RT	8.50	Poor. Vertical crack 8.50", Delamination at 4.50".	Compacted Sand/Gravel= 8.50"
18	N34.90646 W83.90088	197+00 WB, LN 2, DW, 16.5' LT	7.50	Good. Vertical crack 0.50".	Compacted Sand/Gravel= 10.00"
19	N3490648 W83.90074	197+60 WB, LN 1, PW, 8.5' LT	8.50	Fair. Vertical crack 3.25", Delamination at 3.25", minor surface air voids.	Compacted Sand/Gravel= 9.75"
20	N34.90759 W83.88980	231+00 WB, LN 2, PW, 20.5' LT	7.50	Good. No visible stresses.	Compacted Sand/Gravel= 9.75"
21	N34.90778 W83.88047	259+00 EB, LN 1, PW, 9.5' RT	10.50	Good. No visible stresses.	Compacted Sand/Gravel= 11.50"

Core/ Sample Number	Location in degrees SR 2/ SR 515	Station/Direction/ Location	Asphalt Core Length (inches)	Core Condition	Underlying Material Type/ Thickness
22	N34.90896 W83.87392	279+00 WB, LN 2, PW, 21.5' LT	10.00	Good. Minor air voids at 7.5".	Compacted Sand/Gravel= 9.00"
23	N34.91281 W83.86424	313+00 WB, LN 1, PW, 21.5' LT	10.50	Good. No visible stresses.	GAB=10.0"
24	N34.91504 W83.86293	322+00 EB, LN 1, DW, 2.5' RT	8.75	Good. No visible stresses.	Compacted Sand/Gravel= 6.25"
25	N34.91502 W83.86297	322+00 EB, LN 1, PW, 9.0' RT	9.50	Good. No visible stresses.	Compacted Sand/Gravel= 12.00"
26	N34.92083 W83.85493	355+00 EB, LN 1, PW, 8.0' RT	9.00	Fair. Vertical crack 3.0", Delamination at 3.0".	GAB=9.50"
27	N34.92086 W83.85508	355+00 WB, LN 1, PW, 9.0' LT	9.75	Good. No visible stresses.	GAB=10.75"

Notation:
AR = Hand Auger Refusal/ Unable to break past obstruction.
CTL = Center Turn Lane
DW = Driver's Wheel Path
EB = Eastbound
GAB= Graded Aggregate Base
LN = Designated Travel Lane
LT = Left of the existing centerline, CTL, direction of travel (lower to higher station)
PW = Passengers Wheel Path
RT = Right of the existing centerline, CTL, direction of travel (lower to higher station)
RTL = Right Turn Lane
WB = Westbound

9. *OTHER INFORMATION*

- The Soil Survey Summary for this project was not obtainable as of the issuance of this report. The attached pavement designs used the estimated values recommended in Appendix G and H of the GDOT Pavement Design Manual for Union and Towns Counties. See attached Appendix G – Pavement Design Information for further details.

- The traffic information provided below is based on the data provided in the traffic diagram prepared by HNTB and an approved GDOT interdepartmental correspondence letter entitled, "Reviewed Design Traffic for SR 515/ US 76 from E. Blairsville to Young Harris BP @ CL/CORR A", dated November 1, 2010. See attached Appendix G – PI#122900 Union County, Approval Letter and Union County Traffic Diagrams for further details.

- The full-depth, mill and overlay design analyses are attached to this report. All designs are based on a computer program named GDOT Pavement Design Version 2.0 developed by Georgia Department of Transportation, Pavement Management Branch.

- **Historical Information**

  The GDOT Geo TRAQS Historical Plans Research Website – Electronic Plans Search was reviewed to determine if any historical construction drawings were obtainable for evaluation. No additional historical information regarding previous pavement overlays, pavement management or construction dates were readily available for review for this project. In addition, United Consulting contacted the GDOT Office of Materials and Research for COPACE and any historical information regarding SR 2/ SR 515. GDOT responded with historical COPACES ratings for the segments requested. See Appendix F for further details.

- **Design Considerations for SR 2/ SR 515**
  - Number of lanes (in one-direction): 2
  - With Curb and Gutter
  - Provided Traffic Date A.D.T. (See Traffic Data Table below)
  - Provided Project Let Date: 2017
  - **TRAFFIC DATA**
    - A.D.T. (2019): (See Traffic Data Table below)
    - A.D.T. (2039): (See Traffic Data Table below)
    - Directional Distribution: 50/50
    - Lane Distribution: 90%
    - % 24 Hr. Trucks: (See Traffic Data Table below)
    - % MU: % SU: (See Traffic Data Table below)
    - Function Class: Rural Interstate Principle Arterial
    - Speed Design: $\leq$ 55 mph
    - Terminal Serviceability Index: 2.50
    - Soil Support: 2.5
    - Regional Factor: 2.2 (Union), 2.4(Towns)
    - Design Regional Factor: 2.4

TRAFFIC DATA TABLE:

Area No.	Station Range		ADT (1-Way) for Year		No. of Lanes	Lane Dist (%)	% 24-hr Truck (%MU/%SU)
	From	To	2019	2039			
1	0+00	48+00	9,550	17,250	2	90/10	14 (2/12)
2	48+00	268+00	7,200	13,000	2	90/10	11 (3/8)
3	268+00	380+00	6,800	12,300	2	90/10	8 (1/7)

- **Mill and inlay the top 1.50 inches to 3.50 inches** of the existing pavement for the project at all tie-in in the retained areas, respectively. See Section 10 "**Additional Recommendations**" section for more details.

- **Testing**
  Laboratory testing of selected flexible asphalt core samples taken from the areas listed in Section 8, "Cores", were performed as follow:

  - GDT-115, Determining Rutting Susceptibility Using the Loaded Wheel Tester.

  Laboratory testing of the asphalt cores were performed on cores obtained from Station 8+20 and Station 8+95. The laboratory asphalt rutting susceptibility test showed that the samples tested experienced an average rut depth of greater than or equal to 5 mm with a minimum rut depth of 4.05 mm to a maximum rut depth of 7.5 mm. The test specimens did not experience disintegration or bleeding during LWT testing. The density of the tested specimens ranged from 139.2 pcf to 152.0 pcf. The Specific Gravity of the specimens ranged from 2.449 to 2.464. The AC content ranged from 5.3 to 6.61. Open-graded friction course was observed at a depth of approximately 4 inches below the existing pavement surface. Based on these observations and the laboratory testing, the samples tested are **considered susceptible** to rutting. See attached **Appendix I** for details.

10. ADDITIONAL RECOMMENDATIONS

- We recommend a minimum 100 foot tie-in transition for SR 2/ 515 at the beginning of the project. In addition, we recommend a minimum 100 foot tie-in transition for the side roads. The tie-in transition will consist of milling 1.50 inches and inlay with 12.5 mm Superpave asphalt concrete mix. A 500 foot tie-in transition for SR 2/ 515 at the ending of the project is recommended. This tie-in transition will consist of milling 1.50 inches and inlay with a 12.5 mm, 19 mm and 25 mm Superpave asphalt concrete mix.

- We recommend that the mainline full depth construction be extended to all side roads to the turnouts.

- New pavements should be constructed flush with all existing and/or new utility manholes or vaults.

- We recommend staggered joints for each asphaltic concrete layer to reduce the potential moisture migration from subgrade soils.

- We recommend the application of a 2 foot wide pavement reinforcement fabric, centered on joints to reduce the potential for crack migration through the new asphalt.

- We recommend milling the asphaltic concrete pavement, as per Section 432 of the Standard Specifications.

- We recommend waterproofing the joints and cracks of the asphalt concrete pavement prior to the overlaying operation, as per Section 445 of the Standard Specifications.

- After milling and immediately prior to inlaying/overlaying, we recommend that any surface cracks shall be sealed with a Type M crack sealant, as per Section 407 of the Standard Specifications.

11. ASSUMPTIONS AND JUSTIFICATIONS

- The provided pavement design is based on the traffic information provided by **HNTB.**

- Based on the plans provided and the core samples taken, mill and overlay conditions are acceptable, if desired.

- Between Station 7+00 to Station 48+00, Full Depth Replacement of the existing roadway is recommended due to excessive asphalt/ tar encountered during the coring operations, vertical cracking of the existing pavement, air voids observed within the cores and laboratory results of the LWT. See Cores 5 thru 11.

- Between Station 63+00 to Station 79+00, Overlay Construction is acceptable; some vertical cracks traverse through the existing pavement. Full Depth Replacement of this section is acceptable, if desired. See Cores 12 and 13.

- Between Station 145+00 to Station 190+00, Full Depth Replacement of the existing roadway is recommend due to vertical cracking of the existing pavement. See Core 15, 16 and 17.

- Between Station 190+00 and 200+00, and from 350+00 to Station 360+00, Overlay Construction is acceptable, some vertical cracking of 3 to 3.5 inches in depth was observed. Additional milling or sealing of the vertical cracking may be required. See Cores 19 and 26.

- The station locations for SR 2/ SR 515 and all roadways associated with this project were not provided or staked in the field by a surveyor. United Consulting determined the approximate location of these stations by using a measuring wheel from the nearest identified stationary object marked on the provided plans and a hand-held Global Positioning System (GPS).

12. LIMITATIONS

This report is for the exclusive use of the **Georgia Department of Transportation (GDOT),** its agents, and **HNTB Corporation,** the designers of the project described herein, and may only be applied to this specific project. Our conclusions and recommendations have been prepared using generally accepted standards of Pavement Engineering practice in the State of Georgia and are valid for a period of two years from the issuance of this report. Should the implementation of the recommendations presented in this report be delayed more than two years, re-evaluation of the pavement should be performed. No other warranty is expressed or implied. Our firm is not responsible for conclusions, opinions or recommendations of others. The right to rely upon this report and the data within may not be assigned without **UNITED CONSULTING'S** written permission.

Our preliminary conclusions and recommendations are based upon design information furnished to us, data obtained from the previously described exploration and testing program and our past experience. They do not reflect variations in the subsurface conditions that may be present intermediate of our coring/ borings and in unexplored areas of the site. Should such variations become apparent during construction, it will be necessary to re-evaluate our conclusions and recommendations based upon "on-site" observations of the conditions.

Our conclusions and recommendations are based on our site reconnaissance, anticipated existing pavement thickness, and our past experience.

UNITED CONSULTING

Reported By: Ray E. Halbert, P.E.

Reviewed By: Santanu Sinharoy, P.E.

Appendix A – Figures (35 pages)

Figure1 thru Figure 35: Location/ Coring Location Plan

Appendix B – Project Photographs – (29 pages)

Appendix C – Roadway Photographs – (88 pages)

Appendix D – Example Photographs – (3 pages)

Appendix E – Core Photographs – (15 pages)

Appendix F – Pavement Rating - (18 pages)

Appendix G – Recommended Pavement Section - (12 pages)

GDOT Approval Letter – (1 page)
Traffic Diagrams – (8 pages)
SR 2 / SR 515 / SR 515 Bypass– Full Depth with GAB with Curb and Gutters – (1 page)
SR 2/ SR 515 – Mill/ Inlay with Curb and Gutter from Sta. 0+00 to Sta. 7+00 – (1 page)
SR 2/ SR 515 – Mill/ Overlay with Curb and Gutters – (1 page)

Appendix H – Roadway Survey and Core Properties - (10 pages)

Appendix I – Laboratory Report (23 pages)

Appendix J – Disc